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Subject: Permit Integrity Team - Priority Areas & Next Steps

Dear RCRA Permit Writers,

As you may remember, back in September, we asked for your input on several issues identified in the RCRA permitting program to assist with setting priorities for national resolution. We would like to thank you again for providing us input on and want to update you regarding the outcome of our decision.

After gathering state and regional input on issues impacting the RCRA permitting program, EPA's Permit Integrity Team (PIT) considered in which issue areas the program could make achievable gains in FY18. This included assessing available expertise, resources, as well as where we could leverage existing and ongoing efforts in the program. –

The PIT has chosen to name RCRA Organic Air Emission Standards (AA/BB/CC) and Land Disposal Restrictions (LDR) as the RCRA permit program priority areas for FY18. As a first step towards addressing these issues, we are forming two workgroups and inviting volunteers from the states, particularly those with expertise in those areas, to participate. For those interested in participating in the RCRA Organic Air Emission Standards Workgroup, please contact Lilybeth Colón at colon.lilybeth@epa.gov by **COB January 12, 2018.** For those interested in participating in the LDRs Workgroup, please contact Jeff Gaines at gaines.jeff@epa.gov by **COB January 12, 2018.**

Regarding the other two issue areas, the PIT determined that only targeted efforts focusing on affected Regions are needed for Thermal Desorption Units (TDUs) and that more information is needed prior to determining future action on Post-Closure Care. For this year, we plan to scope our efforts in these areas to include for TDUs, assessing whether national guidance is necessary, and for Post-Closure Care, developing a consistent way in RCRAInfo to accurately reflect the current status of facilities in post-closure care.

Please feel free to contact me if you have any questions.

Thank you and happy holidays!

Lilybeth

Lilybeth Colón | Environmental Engineer
U.S. EPA | OLEM | Office of Resource Conservation and Recovery
T: 703-308-2392 | O: Potomac Yard South: Mail Code: 5303P

To: Atagi, Tracy[Atagi.Tracy@epa.gov]; Kaps, Melissa[Kaps.Melissa@epa.gov]; Elliott, Ross[Elliott.Ross@epa.gov]; Young, Jessica[Young.Jessica@epa.gov]
From: Galbraith, Michael
Sent: Fri 12/16/2016 5:19:20 PM
Subject: Please handle tradebe info request as cbi for now

Please handle the tradebe info request I forwarded to you yesterday as cbi for now. See below email from region 5. Thanks!

Mike Galbraith
Permits Branch (5303P)
Program Implementation/Information Division
Office of Resource Conservation and Recovery
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

From: Galbraith, Michael
Sent: Friday, December 16, 2016 12:13 PM
To: Lee, Jae
Subject: Re: Tradebe Information Request Letter

understood - thanks for pointing that out - i'll pass this along to the few folks I forwarded the letter to

Mike Galbraith
Permits Branch (5303P)
Program Implementation/Information Division
Office of Resource Conservation and Recovery
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

From: Lee, Jae
Sent: Friday, December 16, 2016 12:05 PM
To: SCHROER, CRAIG; Galbraith, Michael
Cc: Valentino, Michael; Cunningham, Michael; Chow, Kevin; Setnicar, Mary
Subject: FW: Tradebe Information Request Letter

Craig and Mike,

As you can see the emails below, the December 15, 2016 Information Request letter for Tradebe's SDS system might contains a CBI as claimed by tradebe. Since we don't have any specific information about the confidential nature of the letter, we can't mark the Letter as a CBI.

However, please don't release the letter to the public until we receive more specific information of the letter for its CBI nature.

If you receive any FOIA request of the letter, please let us know.

Thank you for your cooperation in this matter.

Jae Lee

From: Tita LaGrimas [mailto:Tita.LaGrimas@tradebe.com]
Sent: Friday, December 16, 2016 11:01 AM
To: Lee, Jae <lee.jae@epa.gov>
Cc: SCHROER, CRAIG <CSCHROER@idem.IN.gov>; Setnicar, Mary <Setnicar.Mary@epa.gov>
Subject: RE: Tradebe Information Request Letter

Thank you Jae and I apologize. In my hast of generating my email to you to protect the confidential information I meant to include a statement that we are presently reviewing the USEPA's questions and will identify today the questions that contain confidential information.
I will get right back to you.
Respectfully,
Tita

Tita LaGrimas
Executive VP of Regulatory Affairs
Tradebe Environmental Services, LLC

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TRADEBE

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From: Lee, Jae [mailto:lee.jae@epa.gov]
Sent: Friday, December 16, 2016 10:57 AM
To: Tita LaGrimas
Cc: SCHROER, CRAIG; Setnicar, Mary
Subject: RE: Tradebe Information Request Letter

Tita, Thank you for letting us know the potential confidential nature of the information request letter dated December 15, 2016.

Since your email contains no specific information about which questions are potentially confidential nature, we cant's mark the entire December 15, 2016 Information request letter as a confidential business information (CBI) at this time. However, with respect to your claim, we will not release this letter to the public until you submit more specific information about the types of CBI questions in the letter.

When you submit a response for the letter, you can certainly request EPA to mark certain types of questions as CBI of the December 15, 2016 letter.

If we receive any Freedom of Information Act (FOIA) request of the letter, we can contact you first for any additional information about your claim of the CBI of the letter.

Please let us know the tentative response submittal date of the Information Request.
After we receive the Tradebe's response, we can arrange a meeting to discuss the submitted response.

Thank you

Jae Lee

From: Tita LaGrimas [mailto:Tita.LaGrimas@tradebe.com]
Sent: Friday, December 16, 2016 10:06 AM
To: Lee, Jae <lee.jae@epa.gov>
Cc: SCHROER, CRAIG <CSCHROER@idem.IN.gov>; Setnicar, Mary <Setnicar.Mary@epa.gov>
Subject: RE: Tradebe Information Request Letter

Good morning Jae,

Tradebe is looking forward to continue working with USEPA Region 5, once the information is provided Tradebe would like to come Region 5's office to review our responses with you.

To follow up on our telephone conversation this morning there are several items contained in USEPA's letter that are related to Tradebe's confidential information (information submitted to Region 5 and IDEM in accordance with State and Federal Confidentiality Requirements), therefore I respectfully request we maintain USEPA's letter as confidential document and not available to the public.

Please let me know if you have any questions or we need to discuss this further, I can be reached at 219.746.8713.
Thank you for your time and consideration.
Respectfully,
Tita

Tita LaGrimas
Executive VP of Regulatory Affairs
Tradebe Environmental Services, LLC

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From: Lee, Jae [mailto:lee.jae@epa.gov]
Sent: Thursday, December 15, 2016 9:57 AM
To: Tita LaGrimas
Cc: SCHROER, CRAIG; Setnicar, Mary
Subject: Tradebe Information Request Letter

Tita,

The information request letter for Tradebe is attached.

If you need an original letter and/or word-version of the letter, please let me know.

Jae Lee
RCRA/Tsca Section

EPA Region 5
312-886-3781

To: Fruitwala, Kishor[Fruitwala.Kishor@epa.gov]; Luschek, Robert[Luschek.Robert@epa.gov]; Potts, Mark[Potts.Mark@epa.gov]; Jones, Bruced[Jones.Bruced@epa.gov]; Atagi, Tracy[Atagi.Tracy@epa.gov]; Przyborski, Jay[Przyborski.Jay@epa.gov]
From: Tidmore, Guy
Sent: Fri 6/8/2018 4:30:03 PM
Subject: RE: LDEQ approach to Verified Recycler Exemption

Kishor,

I am on travel next week. I would suggest that Cynthia Kaleri also be invited, as she was instrumental in developing the US Ecology and TD*X CAFO's.

From: Fruitwala, Kishor
Sent: Thursday, June 07, 2018 1:17 PM
To: Luschek, Robert <Luschek.Robert@epa.gov>; Potts, Mark <Potts.Mark@epa.gov>; Tidmore, Guy <tidmore.guy@epa.gov>; Jones, Bruced <Jones.Bruced@epa.gov>; Atagi, Tracy <Atagi.Tracy@epa.gov>; Przyborski, Jay <Przyborski.Jay@epa.gov>
Subject: LDEQ approach to Verified Recycler Exemption

Hi All,

Please see note below from Kevin Matthews regarding Thermaldyne, LA. Please let me know your availability on Wed, June 13 in the morning, and anytime on Thurs, June 14.

Thank you so much.

Kishor

From: Kevin Matthews [mailto:KMatthews@nationalstrategies.com]
Sent: Wednesday, June 06, 2018 11:06 AM
To: Fruitwala, Kishor <Fruitwala.Kishor@epa.gov>
Cc: Luschek, Robert <Luschek.Robert@epa.gov>; Potts, Mark <Potts.Mark@epa.gov>; Tidmore, Guy <tidmore.guy@epa.gov>; Jones, Bruced <Jones.Bruced@epa.gov>; Atagi, Tracy <Atagi.Tracy@epa.gov>
Subject: RE: LDEQ approach to Verified Recycler Exemption

Kishor,
I check and Wednesday 6/13 is our preferred date and Thursday is the alternate. We'd like to avoid Friday if at all possible. Please let me know what works for Region 6. On our end it will be:

Carl Palmer and Gregg Meyers of TD*X
Andy Marshall of US Ecology
JD Head – counsel to TD*X
Myself – consultant to TD*X and USE.

Thanks

From: Fruitwala, Kishor [mailto:Fruitwala.Kishor@epa.gov]
Sent: Wednesday, June 6, 2018 10:00 AM
To: Kevin Matthews <KMatthews@nationalstrategies.com>
Cc: Luschek, Robert <Luschek.Robert@epa.gov>; Potts, Mark <Potts.Mark@epa.gov>; Tidmore, Guy <tidmore.guy@epa.gov>; Jones, Bruced <Jones.Bruced@epa.gov>; Atagi, Tracy <Atagi.Tracy@epa.gov>
Subject: RE: LDEQ approach to Verified Recycler Exemption

Kevin,

I have just returned from a two-week vacation, and hence, the delay in responding back to you. Let me check the availability of people next week for a meeting/conf call. Would you have any preference – June 13/14/15?

Thank you.

Kishor

Kishor Fruitwala, Ph.D.
Chief, RCRA Permits Section (6MM-RP)
Multimedia Division, EPA Region 6
214-665-6669

From: Spalding, Susan
Sent: Tuesday, May 29, 2018 3:47 PM
To: Kevin Matthews <KMatthews@nationalstrategies.com>
Cc: Fruitwala, Kishor <Fruitwala.Kishor@epa.gov>; Luschek, Robert <Luschek.Robert@epa.gov>; Potts, Mark <Potts.Mark@epa.gov>
Subject: RE: LDEQ approach to Verified Recycler Exemption

Kevin – thanks for your note. I am copying Kishor Fruitwala and Rob Luschek from my branch and Mark Potts from enforcement in my reply for their follow-up. Also including Bruce Jones from Regional Counsel. I am retiring tomorrow so I will ask Kishor to take the lead on scheduling a discussion. I suspect they will also want to coordinate with EPA HQ.

Susan Spalding, Associate Director
Hazardous Waste Branch
EPA Region 6
(214) 665-8022

From: Kevin Matthews [mailto:KMatthews@nationalstrategies.com]
Sent: Tuesday, May 29, 2018 2:41 PM
To: Spalding, Susan <Spalding.Susan@epa.gov>
Subject: LDEQ approach to Verified Recycler Exemption

Susan,
We've had a series of calls/meetings with LDEQ as it relates to the Thermaldyne Permit and VRE. Based on those meetings we would like to request a follow up meeting in Dallas with your team and hopefully the enforcement side of the shop. There are several parts of this approach that we would like to bring to Region 6's attention and provide our thoughts and input as well as answer any questions you may have. We would like to arrange this meeting as soon as possible given the time frame in LA that could allow Thermaldyne to proceed. We are of course happy to work around your schedule. As for background here is a summary of our understanding of LDEQ staff plans for implementing the EPA's rule on the Transfer-Based Exclusion under the Definition of Solid Waste re-write.

- LDEQ stated that they have already adopted the Verified Recycler Exclusion (VRE), and that they do not intend to rescind it. When EPA rescinds the VRE based on the court order, that will not affect LDEQ keeping it in their adopted regulations. They feel that the VRE is more restrictive than the Transfer-Based Exclusion, and that it is acceptable under Federal Law for a State to have regulations that are more restrictive than EPA regs.
- Then, LDEQ said that they plan to allow Thermaldyne to operate their TDU on listed and characteristic hazwaste under the VRE, and thereby exclude their feed material from the DSW by issuing them a VRE variance. They believe that the air permit is sufficient to manage air emissions, and appear to be ready to approve Thermaldyne ops with no additional technical requirements. For information, the Thermaldyne air permit has essentially no technical requirements, nor any demonstration testing requirements, and for practical purposes only restricts Thermaldyne to operate so as to create no visible emissions.
- Then, LDEQ said that they intend to instruct other permitted units (we infer that means Chem Waste) to file Class 1 Mods to remove the TDU from their RCRA permit and operate under the VRE without any technical requirements.

Of course there is a lot of nuance that gets LDEQ to the above positions. Their basic position seems to be that once a waste is excluded from the DSW by variance, the RCRA technical standards don't apply to the recycling process. So, it would seem that if the RCRA technical standards do apply to TDUs that combust all or a portion of their hazardous waste feed, as clearly established by the Rineco and USET/TDX enforcement actions, that the States need to be instructed to not grant VRE variances for that activity, or if they do, to fully incorporate the technical criteria of RCRA (i.e. MACT EEE) into the variance, including a requirement to conduct a performance test.

We do appreciate the time and consideration Region 6 has given this issue to date and we do look forward to discussing as soon as possible.

Please let me know if you have any questions.

Many thanks,
Kevin

KEVIN L. MATTHEWS
NSI | MANAGING DIRECTOR, SUSTAINABILITY SECTOR
1990 K ST NW SUITE 320 |WASHINGTON, DC 20006
T 202 . 349 . 7010 (DIRECT)
kmatthews@nationalstrategies.com
www.nationalstrategies.com

To: Behan, Frank[Behan.Frank@epa.gov]; Atagi, Tracy[Atagi.Tracy@epa.gov]
From: Galbraith, Michael
Sent: Thur 5/25/2017 11:59:35 AM
Subject: FW: Tradebe Status

Fyi – so far no appeal

Mike Galbraith
Permits Branch (5303P)
Program Implementation/Information Division
Office of Resource Conservation and Recovery
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

(703) 605-0567

From: Lee, Jae
Sent: Wednesday, May 24, 2017 3:01 PM
To: rjean@idem.in.gov
Cc: Valentino, Michael <Valentino.Michael@epa.gov>; Galbraith, Michael <Galbraith.Michael@epa.gov>
Subject: RE: Tradebe Status

Thanks, Jean.

I will do that.

Jae

From: JEAN, RUTH [mailto:RJEAN@idem.IN.gov]
Sent: Wednesday, May 24, 2017 1:58 PM
To: Lee, Jae <lee.jae@epa.gov>
Subject: RE: Tradebe Status

So far, no appeal. Our legal suggested we wait another week to be sure. Send me a reminder next week, and I'll let you know.

From: JEAN, RUTH
Sent: Wednesday, May 24, 2017 1:03 PM
To: 'Lee, Jae' <lee.jae@epa.gov>
Subject: RE: Tradebe Status

I think it's safe to say the appeal deadline was late last week. I haven't heard of an appeal being filed, but sometimes it takes a bit of time for us to be informed. I will check with our legal counsel to see if an appeal has come through. I'll let you know.

From: Lee, Jae [mailto:lee.jae@epa.gov]
Sent: Wednesday, May 24, 2017 12:53 PM
To: JEAN, RUTH <RJEAN@idem.IN.gov>
Subject: RE: Tradebe Status

Ruth,

Do you have anyone petitioned for appeal of the State RCRA final permit for Tradebe?

Does the appeal deadline passed or do we need to wait couple more days? HQ is very anxious to know.

Jae

From: JEAN, RUTH [mailto:RJEAN@idem.IN.gov]
Sent: Wednesday, April 19, 2017 9:55 AM
To: Lee, Jae <lee.jae@epa.gov>
Subject: RE: Tradebe Status

Jae,

Per our issued guidance: "If you object to this decision issued by the Indiana Department of Environmental Management (IDEM) and are: 1) the person to whom the decision was directed, 2) a party specified by law as being eligible to appeal, or 3) aggrieved or adversely affected by the decision, you are entitled to file an appeal. (An aggrieved or adversely affected person is one who would be considered by the court to be negatively impacted by the decision. If you file an appeal because you feel that you are aggrieved, it will be up to you to demonstrate in your appeal how you are directly impacted in a negative way by the decision)."

If you would like an interpretation of what this means, you should talk with one of our attorneys. I recommend April Lashbrook. 317-233-1805.

Thanks,

Ruth

From: Lee, Jae [mailto:lee.jae@epa.gov]
Sent: Wednesday, April 19, 2017 10:47 AM
To: JEAN, RUTH <RJEAN@idem.IN.gov>
Cc: Galbraith, Michael <Galbraith.Michael@epa.gov>; Valentino, Michael <Valentino.Michael@epa.gov>; Cunningham, Michael <cunningham.michael@epa.gov>; Setnicar, Mary <Setnicar.Mary@epa.gov>; NADDY, JOHN <JNADDY@idem.IN.gov>
Subject: RE: Tradebe Status

Thanks, Ruth

So I will take that ETC can appeal the IDEM's draft RCRA permit even if they have not submitted review comments during the comment period, though I am not sure how they can demonstrate they are an adversely affected party.

Jae

From: JEAN, RUTH [mailto:RJEAN@idem.IN.gov]
Sent: Wednesday, April 19, 2017 9:33 AM
To: Lee, Jae <lee.jae@epa.gov>
Subject: RE: Tradebe Status

Jae,

If the petitioner can demonstrate that they are an aggrieved or adversely affected party, then they can appeal.

Thanks,

Ruth

From: Lee, Jae [mailto:lee.jae@epa.gov]
Sent: Wednesday, April 19, 2017 9:49 AM
To: JEAN, RUTH <RJEAN@idem.IN.gov>
Subject: RE: Tradebe Status

Ruth,

One other questions is that can ETC appeal your permit of they have not submitted comment during the public comment period? The federal rule is that only the people who has submitted comment during the public comment period can appeal the permit to the portion of the permit they hhave commented.

Jae

From: JEAN, RUTH [mailto:RJEAN@idem.IN.gov]
Sent: Wednesday, April 19, 2017 5:17 AM
To: Lee, Jae <lee.jae@epa.gov>
Subject: RE: Tradebe Status

I have not received any comments. If I do, you will see the comments when I respond to them with the issuance of the final decision in approximately 4-6 weeks.

From: Lee, Jae [mailto:lee.jae@epa.gov]
Sent: Tuesday, April 18, 2017 10:41 AM
To: JEAN, RUTH <RJEAN@idem.IN.gov>
Subject: RE: Tradebe Status

Ruth,

I guess the public comment period for the RCRA draft permit for Tardebe is ended.

Was ETC submitted any comments for the draft permit? If they did, can you share with us?

Jae

From: JEAN, RUTH [mailto:RJEAN@idem.IN.gov]
Sent: Wednesday, April 12, 2017 10:34 AM
To: Lee, Jae <lee.jae@epa.gov>
Subject: RE: Tradebe Status

No

From: Lee, Jae [mailto:lee.jae@epa.gov]
Sent: Wednesday, April 12, 2017 11:30 AM
To: JEAN, RUTH <RJEAN@idem.IN.gov>
Subject: RE: Tradebe Status

Ruth
Has the Environmental Technology Council submitted review comments for the State RCRA draft permit for Tradebe?

Jae

From: Lee, Jae
Sent: Monday, April 10, 2017 10:43 AM
To: 'JEAN, RUTH' <RJEAN@idem.IN.gov>
Cc: John Naddy <jnaddy@idem.in.gov>; Setnicar, Mary <setnicar.mary@epa.gov>; SCHROER, CRAIG <CSCHROER@idem.IN.gov>; Valentino, Michael <valentino.michael@epa.gov>
Subject: Tradebe Status

Ruth,

I would like to let you know that we received response (mostly CBI) for the information request of the Desorption Units from

Tradebe.

We have a meeting scheduled with Tradebe's representatives on April 12 at Chicago to discuss mass balance aspects of the units.

We are also scheduled a conference call with HQ and Region 6 on April 17.

If things are moving well, we might able to send a memo to HQ of the Region 5's position on this permit exemption issue by the end of April or early May.

Please let me know if you have any questions.

Jae

From: JEAN, RUTH [mailto:RJEAN@idem.IN.gov]
Sent: Tuesday, February 07, 2017 11:26 AM
To: Lee, Jae <lee.jae@epa.gov>
Cc: Valentino, Michael <Valentino.Michael@epa.gov>; John Naddy <jnaddy@idem.in.gov>; Setnicar, Mary <Setnicar.Mary@epa.gov>
Subject: RE: Tradebe waste derived fuel issue

Jae,

As I've informed you before, any questions related to the SDS decision should be directed to John Naddy.

When you called earlier, you asked if Tradebe generates HW fuels from their fuel blending operations, and who utilizes those fuels. For clarification, my answers were in relation to their permitted fuel blending operations only. I want to ensure that you did not think I was discussing the SDS unit.

For future reference, please understand that I cannot answer any questions regarding the SDS units. I am not familiar with the SDS, nor was I involved in the original decision. I can only answer questions regarding their hazardous waste permit.

Thanks,

Ruth

From: Lee, Jae [mailto:lee.jae@epa.gov]
Sent: Tuesday, February 07, 2017 11:33 AM
To: JEAN, RUTH
Cc: Valentino, Michael
Subject: Tradebe waste derived fuel issue

Ruth,

HQ came up a question that the IDEM's March 31, 2006 letter (attached) states that, in the second page, fifth paragraph,
" If the unit was used to produce fuels or merely for treatment, the unit would require a HW treatment permit".

Since Tradebe generates hazardous waste derived fuels for the blending to send to off-site cement kilns, should they be required to have a treatment permit?

Any thoughts on this? This letter was referenced in the CAA permit.

Jae

Message

From: Devlin, Betsy [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=B76A4BF5AFC84459A6BF2A6A4645F40F-BDEVLIN]
Sent: 9/7/2017 12:04:32 PM
To: Victorine, Gary [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=62bfb0d07a1749e59a3b54f7f4a1e191-GVictori]; Lowery, Brigid [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=da8c8861510148a6bdcd084192758505-Lowery, Brigid]; Johnson, Barnes [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c39e9338cbf04dc3b4b29f78e5213303-Johnson, Barnes]; Elliott, Ross [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=33cb08013cc94c21a3e3236dbad4c4a4-REELLIOT]; Sasseville, Sonya [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=9302bd775fa84bebbbe0c430316f76c6-SSASSEVI]; Guernica, Mimi [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6c8a7d898ed74b678830c17ee521a045-MGUERNIC]; Kohler, Amanda [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=665a6cdd3371457fb03d5184f58f7a4a-Kohler, Amanda]; Galbraith, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0abf7f5c1a5e462e8096cb58ef9757eb-MGALBRAI]; Young, Jessica [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=26404c78d3dc441f810ac723cf8f9d49-JBIEGELS]; Atagi, Tracy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=ebcfd670077440dfb63a691749f20af2-TATAGI]; ORCR IO [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=feb18e156b3547d1881d93c5893396f8-ORCR IO]; Behan, Frank [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b37b3a6d67644ad3bf5717d99610941e-FBEHAN]
CC: Spalding, Susan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=17fb5ab7a65145d4bde2327fc6d02378-Spalding, Susan]; Harris, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f3e74114cd454359b25fdb85161aad9f-Maharris]; Cunningham, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0ce197b42b574909995fe91bdfe04ba6-MCunning]; Valentino, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=29ccd101653e4a5fae2273a9ae9f7bd0-MValenti]
Subject: RE: TDU Discussion with ETC

Thanks Gary!

From: Victorine, Gary
Sent: Wednesday, September 06, 2017 5:05 PM
To: Lowery, Brigid <Lowery.Brigid@epa.gov>; Johnson, Barnes <Johnson.Barnes@epa.gov>; Devlin, Betsy <Devlin.Betsy@epa.gov>; Elliott, Ross <Elliott.Ross@epa.gov>; Sasseville, Sonya <Sasseville.Sonya@epa.gov>; Guernica, Mimi <Guernica.Mimi@epa.gov>; Kohler, Amanda <Kohler.Amanda@epa.gov>; Galbraith, Michael <Galbraith.Michael@epa.gov>; Young, Jessica <Young.Jessica@epa.gov>; Atagi, Tracy <Atagi.Tracy@epa.gov>; ORCR IO <ORCR_IO@epa.gov>; Behan, Frank <Behan.Frank@epa.gov>
Cc: Spalding, Susan <Spalding.Susan@epa.gov>; Harris, Michael <harris.michael@epa.gov>; Cunningham, Michael <cunningham.michael@epa.gov>; Valentino, Michael <Valentino.Michael@epa.gov>
Subject: RE: TDU Discussion with ETC

Hi there Barnes—

Yes, you are right. I checked with my folks, and found that the R5 analysis on the TDU has not been shared with anyone, as both the Attorney-Client Privilege protection and CBI claim are still applicable.
Let me know if you have any other questions.

Gary Victorine, Chief
RCRA Branch
Land and Chemicals Division
EPA Region 5
312-886-1479

From: Lowery, Brigid
Sent: Wednesday, September 06, 2017 10:28 AM
To: Johnson, Barnes <Johnson.Barnes@epa.gov>; Devlin, Betsy <Devlin.Betsy@epa.gov>; Elliott, Ross <Elliott.Ross@epa.gov>; Sasseville, Sonya <Sasseville.Sonya@epa.gov>; Guernica, Mimi <Guernica.Mimi@epa.gov>; Kohler, Amanda <Kohler.Amanda@epa.gov>; Galbraith, Michael <Galbraith.Michael@epa.gov>; Young, Jessica <Young.Jessica@epa.gov>; Atagi, Tracy <Atagi.Tracy@epa.gov>; ORCR IO <ORCR_IO@epa.gov>; Behan, Frank <Behan.Frank@epa.gov>
Cc: Victorine, Gary <victorine.gary@epa.gov>; Spalding, Susan <Spalding.Susan@epa.gov>; Harris, Michael <harris.michael@epa.gov>
Subject: RE: TDU Discussion with ETC

We'll get back to you Barnes with a rep. Thanks.

Brigid Lowery | Acting Director | Land and Chemicals Division | U.S. EPA Region 5
312-886-7153

From: Johnson, Barnes
Sent: Wednesday, September 6, 2017 10:25 AM
To: Devlin, Betsy <Devlin.Betsy@epa.gov>; Elliott, Ross <Elliott.Ross@epa.gov>; Sasseville, Sonya <Sasseville.Sonya@epa.gov>; Guernica, Mimi <Guernica.Mimi@epa.gov>; Kohler, Amanda <Kohler.Amanda@epa.gov>; Galbraith, Michael <Galbraith.Michael@epa.gov>; Young, Jessica <Young.Jessica@epa.gov>; Atagi, Tracy <Atagi.Tracy@epa.gov>; ORCR IO <ORCR_IO@epa.gov>; Behan, Frank <Behan.Frank@epa.gov>
Cc: Lowery, Brigid <Lowery.Brigid@epa.gov>; Victorine, Gary <victorine.gary@epa.gov>; Spalding, Susan <Spalding.Susan@epa.gov>
Subject: FW: TDU Discussion with ETC

FYI – see below. Please share with others that I have missed. Note that we need to add representatives from R5 and R6 to the invitee list for the meeting – I noticed that they have not been added yet.

I assume that we all agree that the R5 analysis with redacted CBI remains a deliberative document that we are not prepared to share with outside parties (I assume this document has not been shared with any states or other outside parties which of course would result in us no longer being able to claim deliberative privilege. Please confirm that this document has remained internal to EPA before I respond to David. Thanks.)

Barnes Johnson
USEPA | Resource Conservation and Recovery | Tel 703-308-8895 |
johnson.barnes@epa.gov | @EPAland

From: David Case [mailto:dcase@etc.org]
Sent: Wednesday, September 06, 2017 11:00 AM
To: Johnson, Barnes <Johnson.Barnes@epa.gov>
Subject: RE: TDU Discussion with ETC

Barnes -- also in advance of the meeting, we request a copy of the Region 5 analysis (redacted if necessary) so we can prepare for the discussion. Thanks.

From: David Case [mailto:dcase@etc.org]
Sent: Wednesday, September 06, 2017 10:57 AM
To: 'Johnson, Barnes'; 'Devlin, Betsy'; 'Elliott, Ross'; 'Young, Jessica'; 'Behan, Frank'; 'Atagi, Tracy'; 'Sasseville, Sonya'; 'Guernica, Mimi'; 'Kohler, Amanda'; 'Galbraith, Michael'; 'Lowery, Brigid'; 'Victorine, Gary'; 'Radtke, Meghan'; 'Huggins, Richard'
Subject: RE: TDU Discussion with ETC

Barnes,

I wanted to send you the ETC attendance list for our TDU meeting on 9/14. The following ETC members will join me and James Williams at the meeting:

Phil Retallick, Clean Harbors, Lexington SC
Andrew Marshall, US Ecology, Boise ID
Craig Hogarth, Heritage, Indianapolis IN
Nick Maoloni, Ross Environmental, Elyria OH
Todd Washburn, Waste Management, Houston TX
Jim Denson, Waste Management, Portland OR
Mark Noel, Waste Management, Baton Rouge LA

In addition, several folks would like to join by conference call:

Carrie Beringer, Heritage Thermal, East Liverpool OH
Angie Martin, Heritage, Indianapolis IN
Tom Baker, Veolia, Flanders NJ

We look forward to an informative meeting.

David R. Case
Executive Director
1112 16th Street NW, Suite 420
Washington DC 20036
(202) 783-0870 x201

<< OLE Object: Picture (Device Independent Bitmap) >> Environmental Technology Council

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-----Original Appointment-----
From: Johnson, Barnes [mailto:Johnson.Barnes@epa.gov] **On Behalf Of** Johnson, Barnes
Sent: Monday, August 28, 2017 10:57 AM
To: dcase@etc.org; Devlin, Betsy; Elliott, Ross; Young, Jessica; Behan, Frank; Atagi, Tracy; Sasseville, Sonya; Guernica, Mimi; Kohler, Amanda; Galbraith, Michael; Lowery, Brigid; Victorine, Gary; Radtke, Meghan; Huggins, Richard
Subject: TDU Discussion with ETC
When: Thursday, September 14, 2017 11:00 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: DCRoomPYS6100Projector/DC-Potomac-Yard-South-ORCR

Message

From: Victorine, Gary [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=62BFB0D07A1749E59A3B54F7F4A1E191-GVICTORI]
Sent: 9/6/2017 9:05:16 PM
To: Lowery, Brigid [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=da8c8861510148a6bdcd084192758505-Lowery, Brigid]; Johnson, Barnes [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=c39e9338cbf04dc3b4b29f78e5213303-Johnson, Barnes]; Devlin, Betsy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b76a4bf5afc84459a6bf2a6a4645f40f-BDEVLIN]; Elliott, Ross [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=33cb08013cc94c21a3e3236dbad4c4a4-REELLIOT]; Sasseville, Sonya [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=9302bd775fa84bebbbe0c430316f76c6-SSASSEVI]; Guernica, Mimi [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6c8a7d898ed74b678830c17ee521a045-MGUERNIC]; Kohler, Amanda [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=665a6cdd3371457fb03d5184f58f7a4a-Kohler, Amanda]; Galbraith, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0abf7f5c1a5e462e8096cb58ef9757eb-MGALBRAI]; Young, Jessica [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=26404c78d3dc441f810ac723cf8f9d49-JBIEGELS]; Atagi, Tracy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=ebcfd670077440dfb63a691749f20af2-TATAGI]; ORCR IO [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=feb18e156b3547d1881d93c5893396f8-ORCR IO]; Behan, Frank [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=b37b3a6d67644ad3bf5717d99610941e-FBEHAN]
CC: Spalding, Susan [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=17fb5ab7a65145d4bde2327fc6d02378-Spalding, Susan]; Harris, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f3e74114cd454359b25fdb85161aad9f-Maharris]; Cunningham, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0ce197b42b574909995fe91bdfe04ba6-MCunning]; Valentino, Michael [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=29ccd101653e4a5fae2273a9ae9f7bd0-MValenti]
Subject: RE: TDU Discussion with ETC

Hi there Barnes—
Yes, you are right. I checked with my folks, and found that the R5 analysis on the TDU has not been shared with anyone, as both the Attorney-Client Privilege protection and CBI claim are still applicable.
Let me know if you have any other questions.

Gary Victorine, Chief
RCRA Branch
Land and Chemicals Division
EPA Region 5
312-886-1479

From: Lowery, Brigid
Sent: Wednesday, September 06, 2017 10:28 AM
To: Johnson, Barnes <Johnson.Barnes@epa.gov>; Devlin, Betsy <Devlin.Betsy@epa.gov>; Elliott, Ross <Elliott.Ross@epa.gov>; Sasseville, Sonya <Sasseville.Sonya@epa.gov>; Guernica, Mimi <Guernica.Mimi@epa.gov>; Kohler, Amanda <Kohler.Amanda@epa.gov>; Galbraith, Michael <Galbraith.Michael@epa.gov>; Young, Jessica

<Young.Jessica@epa.gov>; Atagi, Tracy <Atagi.Tracy@epa.gov>; ORCR IO <ORCR_IO@epa.gov>; Behan, Frank <Behan.Frank@epa.gov>
Cc: Victorine, Gary <victorine.gary@epa.gov>; Spalding, Susan <Spalding.Susan@epa.gov>; Harris, Michael <harris.michael@epa.gov>
Subject: RE: TDU Discussion with ETC

We'll get back to you Barnes with a rep. Thanks.

Brigid Lowery | Acting Director | Land and Chemicals Division | U.S. EPA Region 5
312-886-7153

From: Johnson, Barnes
Sent: Wednesday, September 6, 2017 10:25 AM
To: Devlin, Betsy <Devlin.Betsy@epa.gov>; Elliott, Ross <Elliott.Ross@epa.gov>; Sasseville, Sonya <Sasseville.Sonya@epa.gov>; Guernica, Mimi <Guernica.Mimi@epa.gov>; Kohler, Amanda <Kohler.Amanda@epa.gov>; Galbraith, Michael <Galbraith.Michael@epa.gov>; Young, Jessica <Young.Jessica@epa.gov>; Atagi, Tracy <Atagi.Tracy@epa.gov>; ORCR IO <ORCR_IO@epa.gov>; Behan, Frank <Behan.Frank@epa.gov>
Cc: Lowery, Brigid <Lowery.Brigid@epa.gov>; Victorine, Gary <victorine.gary@epa.gov>; Spalding, Susan <Spalding.Susan@epa.gov>
Subject: FW: TDU Discussion with ETC

FYI – see below. Please share with others that I have missed. Note that we need to add representatives from R5 and R6 to the invitee list for the meeting – I noticed that they have not been added yet.

I assume that we all agree that the R5 analysis with redacted CBI remains a deliberative document that we are not prepared to share with outside parties (I assume this document has not been shared with any states or other outside parties which of course would result in us no longer being able to claim deliberative privilege. Please confirm that this document has remained internal to EPA before I respond to David. Thanks.)

Barnes Johnson
USEPA | Resource Conservation and Recovery | Tel 703-308-8895 |
johnson.barnes@epa.gov | @EPAland

From: David Case [mailto:dcase@etc.org]
Sent: Wednesday, September 06, 2017 11:00 AM
To: Johnson, Barnes <Johnson.Barnes@epa.gov>
Subject: RE: TDU Discussion with ETC

Barnes – also in advance of the meeting, we request a copy of the Region 5 analysis (redacted if necessary) so we can prepare for the discussion. Thanks.

From: David Case [mailto:dcase@etc.org]

Sent: Wednesday, September 06, 2017 10:57 AM
To: 'Johnson, Barnes'; 'Devlin, Betsy'; 'Elliott, Ross'; 'Young, Jessica'; 'Behan, Frank'; 'Atagi, Tracy'; 'Sasseville, Sonya'; 'Guernica, Mimi'; 'Kohler, Amanda'; 'Galbraith, Michael'; 'Lowery, Brigid'; 'Victorine, Gary'; 'Radtke, Meghan'; 'Huggins, Richard'
Subject: RE: TDU Discussion with ETC

Barnes,

I wanted to send you the ETC attendance list for our TDU meeting on 9/14. The following ETC members will join me and James Williams at the meeting:

Phil Retallick, Clean Harbors, Lexington SC
Andrew Marshall, US Ecology, Boise ID
Craig Hogarth, Heritage, Indianapolis IN
Nick Maoloni, Ross Environmental, Elyria OH
Todd Washburn, Waste Management, Houston TX
Jim Denson, Waste Management, Portland OR
Mark Noel, Waste Management, Baton Rouge LA

In addition, several folks would like to join by conference call:

Carrie Beringer, Heritage Thermal, East Liverpool OH
Angie Martin, Heritage, Indianapolis IN
Tom Baker, Veolia, Flanders NJ

We look forward to an informative meeting.

David R. Case
Executive Director
1112 16th Street NW, Suite 420
Washington DC 20036
(202) 783-0870 x201

<< OLE Object: Picture (Device Independent Bitmap) >> Environmental Technology Council

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-----Original Appointment-----
From: Johnson, Barnes [mailto:Johnson.Barnes@epa.gov] **On Behalf Of** Johnson, Barnes
Sent: Monday, August 28, 2017 10:57 AM
To: dcase@etc.org; Devlin, Betsy; Elliott, Ross; Young, Jessica; Behan, Frank; Atagi, Tracy; Sasseville, Sonya; Guernica, Mimi; Kohler, Amanda; Galbraith, Michael; Lowery, Brigid; Victorine, Gary; Radtke, Meghan; Huggins, Richard
Subject: TDU Discussion with ETC
When: Thursday, September 14, 2017 11:00 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: DCRoomPYS6100Projector/DC-Potomac-Yard-South-ORCR

Message

From: Kevin Matthews [KMatthews@nationalstrategies.com]
Sent: 6/7/2018 10:09:39 PM
To: Fruitwala, Kishor [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=7a19009ba86a4236b97131d5d16f2fae-Fruitwala, Kishor]; Luschek, Robert [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=cd6769c1089e464ebe6e5f345960a0cf-Luschek, Robert]; Potts, Mark [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=f0f11dc437f944fd8cb779b3316de870-Potts, Mark]; Tidmore, Guy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6e9af087a1ce4703b25a4a8e6fa048dd-Tidmore, Guy]; Jones, Bruced [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=9026926c877140cbae1d4c0739729813-Jones, Bruced]; Atagi, Tracy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=ebcfd670077440dfb63a691749f20af2-TATAGI]
Subject: Fwd: Comments on Thermaldyne Draft Water Discharge Permit AI Number 198467, Permit Number LA0127307, Activity Number PER20180001
Attachments: TDX_Comments_Thermaldyne_Draft_LPDES_Permit.pdf; ATT00001.htm

Kishor et. Al.
I wanted to share with you our comments on the Thermaldyne permit submitted to LDEQ. Please let us know if Wednesday is going to work to have a meeting as we'd like to make travel arrangements as soon as we can.

Thanks
Kevin

Kevin L. Matthews
NSI
202-349-7010

-------- Forwarded Message --------

Subject: Comments on Thermaldyne Draft Water Discharge Permit AI Number 198467, Permit Number LA0127307, Activity Number PER20180001
Date: Thu, 7 Jun 2018 16:20:28 -0400
From: Carl Palmer <cpalmer@tdxassociates.com>
To: deq.publicnotices@la.gov
CC: Luschek, Robert <Luschek.Robert@epa.gov>, Fruitwala, Kishor <Fruitwala.Kishor@epa.gov>

LDEQ Public Participation,

Please accept my comments on the subject draft variance. I have copied USEPA on my comments via this email.

Sincerely,
Carl Palmer

--

Carl R. Palmer, P.E.
TD*X Associates LP
(919) 349-1583 mobile

TD*X Associates LP
148 South Dowlen Road, PMB 700
Beaumont, TX 77707

From the Desk of
Carl R. Palmer
TD*X Associates, LLC
PO Box 13216
Research Triangle Park, NC 27709
ph (919) 349-1583
FAX (509) 692-8791
E-mail: cpalmer@tdxassociates.com

June 7, 2018

Louisiana Department of Environmental Quality
Public Participation Group
PO Box 4313
Baton Rouge, LA 70821

VIA Email. Deq.publicnotices@la.gov

SUBJECT: AI Number 198467,
Permit Number LA0127307,
Activity Number PER20180001

Dear Sir or Madame;

I have reviewed the May 3, 2018 Draft Water Discharge Permit that proposes to approve the Thermaldyne LLC request to discharge treated wastewater from the processing of RCRA regulated oil bearing hazardous waste materials for their treatment storage and disposal facility in Port Allen, LA. This letter presents my comments on the Draft Permit. I am also providing comments on Thermaldyne's permit application and additional information documents as it relates to this matter.

These comments are based upon a depth of operating experience and specific performance monitoring of essentially the same technologies as being proposed by Thermaldyne. My associates and I have been exclusively engaged in this technology since its earliest use in 1987, we directed and implemented one of the first large scale commercial applications in 1992, and we own and operate an essentially identical facility in Robstown, TX, having operated continuously since 2008 on the same feed materials as proposed by Thermaldyne.

The proposed permit is for Thermaldyne to discharge treated process wastewater from the operation of three centrifuges and a thermal desorption unit (TDU) that are engaged in the reclamation of RCRA regulated oil bearing hazardous waste materials at their treatment storage and disposal facility in Port Allen, LA. The feed material for the facility is a complex mixture of oily materials, containing:

- organic chemicals with toxic and flammable volatile organic compounds (VOCs) including benzene, toluene, xylene, ethylebenzene and trimethylbenzene,
- organic chemicals with toxic semi-volatile organic compounds (SVOCs) including numerous carcinogenic polynuclear aromatic hydrocarbon (PAH) compounds such as benzo-a-pyrene, as well as petroleum oils,
- toxic metals including arsenic, cadmium, chromium, lead, and mercury, as well as significant concentrations of molybdenum, vanadium and nickel, and
- numerous other organic and inorganic chemical compounds that are part of the operation of a petroleum refinery and therefore become constituents of the waste materials that are proposed to be received by Thermaldyne.

The TDU employs process conditions to evaporate and condense the feed material's organic and water constituents into a mixture of oil and water that are separated. The TDU operates at relatively high temperature, above 900°F, generating water soluble organic compounds from feed materials. The wastewater from the TDU contains these water soluble organics, as well as emulsified oil (and the VOC and SVOC compounds present in the oil). The waste water also contains dissolved and filterable solids with the toxic metals from the feed material being present. Additional oily wastewater with soluble organics, emulsified oil and toxic metals is derived from the operation of the three centrifuges that process oily slurries of the same feed materials.

Thermaldyne proposes to use a wastewater treatment system consisting of oil/water separation, dissolved air flotation, polymer addition, sand filter, bag filter, and granular activated carbon. Thermaldyne estimates the TDU and centrifuge wastewater flow to be 10,000 gal/day, plus additional contact wastewater from stormwater run-on at the facility. No chemical data are presented for treated wastewater samples from the facility, because this is a new facility, and Thermaldyne has not previously operated a similar facility.

A review of the draft permit resulted in the following key issues:

- The wastewater from processing petroleum refinery hazardous secondary material (HSM) in a TDU is acutely and chronically toxic when treated with the process that Thermaldyne proposes. Toxicity testing needs to be incorporated into the permit monitoring plan to confirm compliance with permit condition N-3 for Outfall 001 that prohibits the discharge of *toxic materials in quantities such as to cause toxicity to aquatic organisms*.
- Wastewater from TDU processing of petroleum refinery HSM contains significant concentrations of both ammonia, and dissolved solids (TDS) in the form of chlorides and sulfates. A discharge limit for ammonia and possibly TDS should be added to the effluent criteria for Outfall 001, and appropriate monitoring added to confirm compliance.
- Treated wastewater samples from processing petroleum refinery HSM in a comparable TDU exhibit very high levels of BOD, COD, oil & grease (and TPH), TOC, phenol compounds, and hexavalent chromium. Quarterly monitoring is not sufficient to

demonstrate initial compliance with the effluent criteria, and more frequent testing is needed to establish that the water treatment proposed by Thermaldyne can meet the criteria.

- Additional pollutants are likely to be present in the treated wastewater. Thermaldyne has not represented the presence of VOC compounds including benzene and acetone that are known to be present.
- Effluent criteria for Outfall 001 should be derived from the process wastewater criteria, rather than stormwater runoff, according to the methodology of 40 CFR 419.52(a) and (b). Adjustments should be made to the effluent criteria, and the additional pollutants ammonia and sulfide should be added.

TDU facility wastewater samples were analyzed in support of these comments. Two samples were collected in May 2018 from the TD*X TDU operating at the US Ecology Texas facility in Robstown, TX. During the sampling the TD*X facility was processing waste feeds in both the TDU and the centrifuge system that are identical to those proposed for the Thermaldyne facility. The test report is attached to this comment letter.

Aquatic Toxicity Testing of TDU Wastewater from Petroleum Refinery HSM Processing.
The potential for aquatic toxicity was determined using a treated wastewater sample from the TD*X TDU facility in Robstown, TX. The treatment system utilized at the TD*X facility consists of chemical treatment to remove emulsions, clarification, dissolved air flotation, additional clarification and particle filtration. A comparable process as proposed by Thermaldyne. Both acute and chronic toxicity tests were conducted using *C. dubia* (water flea) and *P. promelas* (fathead minnow) and followed US EPA methods. All tests were terminated after 48 hours due to mortality and the results of these tests were as follows:

C. dubia 48 hour LC50<6.25% effluent
C. dubia NOEC<6.25% effluent
P. promelas 48 hour LC50<6.25% effluent
P. promelas NOEC<6.25% effluent

The implications of this data are that at only 6.25% effluent concentrations both acute (lethal) and chronic (long term) toxic conditions would be expected to occur in the receiving water. These data clearly indicate that this wastewater has a potential for exhibiting a high degree of toxicity. Thus, even with receiving stream dilutions in excess of a factor of 10, there is a reasonable potential that the discharge will result in both acute and chronically toxic conditions within the receiving water. The potential for these conditions must be monitored and controlled through the application of appropriate limitations based on whole effluent toxicity.

Data on conductivity and ammonia were collected during the test. The ammonia concentrations were measured at 594 mg/L (as NH_3). At a flow rate of 10,000 gpd, an ammonia concentration of 594 mg/L is equivalent to a daily loading of 40 lbs of nitrogen to the receiving stream per day. In comparison, assuming a typical ammonia discharge limitation of 2 mg/L (as nitrogen),

this loading is equivalent to a municipal discharge flow of 2.4 MGD (comparable to a city of 10,000 inhabitants).

With respect to conductivity, a conductivity value of 14,140 µS is roughly equivalent to a TDS of 936 mg/L. The standard for the receiving water is 300 mg/L TDS; thus the discharge will exceed this standard by a factor of 3. This further emphasizes the importance of gathering more data and setting limits.

1.0 General Comments on Thermaldyne LPDES Permit

The permit fails to include monitoring requirements for aquatic toxicity testing, fails to conduct an antidegradation analysis, does not to incorporate limits for constituents that are likely to be in the wastewater and are water quality limiting or are likely to be present in toxic concentrations, and incorrectly applies categorical effluent limitations. As a result of these deficiencies, the permit does not comply with the requirements of LAC 33:IX.

Aquatic Toxicity Testing Must Be Required for Outfall 101. LAC 33:IX.1121.B requires the implementation of aquatic toxicity testing requirements for discharges for which no water-quality related data are available. Specifically, Section B.3 states that 'whole effluent toxicity testing will be required in the permit for discharges where data are insufficient to demonstrate that any discharge does not or will not contribute to ambient toxicity' (emphasis added). The importance of incorporating aquatic toxicity testing requirements cannot be understated when the following is considered:

- This is a new facility and the wastestreams originating from this facility have not been chemically or toxicologically characterized.
- The variability of the feedstock is unknown and must be characterized with respect to both individual chemical constituents as well as aquatic toxicity. Even if data for 'similar' wastestreams has been submitted, the aggregate toxicity and variability of the waste from the proposed Thermaldyne facility is unknown and should be documented through testing of actual discharges.
- Test data from comparable treated wastewater from the TD*X Robstown, TX facility clearly indicate that this wastewater has a potential for exhibiting a high degree of toxicity.
- Data in terms of flow frequency, duration and magnitude do not exist for this discharge and we believe that the estimated flows and chemical characteristics are optimistic, at best. Thus, at a minimum, the discharge must be fully characterized through frequent sampling and analysis throughout the first year of operation to determine if the proposed permit limits are appropriate, if they should be reduced or if additional parameters should also be included in the permit.

Further, we note that the discharge is to a drainage ditch which ultimately flows to the Intracoastal Waterway. The Fact Sheet does not provide flow records for the drainage ditch;

thus, it is assumed that flow is either very low or intermittent. In either case, the drainage ditch is a 'water of the state' and must be protected. Given the results obtained with a similar wastewater, limits of no acute (LC50>100% effluent) and no chronic (NOEC=100% effluent) toxicity should be required.

An Antidegradation Analysis Must Be Conducted. LAC33:IX.1119.C requires an antidegradation analysis be conducted for new or increased discharges to ensure that water quality standards are not exceeded and the designated uses of the receiving water are not adversely impacted. As noted in the Fact Sheet, the receiving stream is not supporting one or more of its designated uses. The receiving stream is listed as impaired due to sulfates, dissolved oxygen, nutrients and fecal coliform. Further, a TMDL has been established within selected subsegments of the Terrebonne Basin for fecal coliform, chlorides, sulfates, total dissolved solids, sediment, total suspended solids, dissolved oxygen, nutrients and turbidity. However, with the exception of TOC and BOD (which exert an oxygen demand on the receiving water), none of these constituents which have been identified to be impacting the designated uses are required to be monitored. Since these compounds have been identified as causing impairment within the Terrebonne Basin, the permit should require monitoring for chloride, sulfate, TDS, TSS, DO, nitrogen, phosphorus and turbidity.

A wastewater sample collected from a comparable facility was analyzed for aquatic toxicity and limited general water quality characteristics (pH, ammonia and conductivity). The results of the chemical analyses were as follows:

- pH = 6.3-6.4
- Ammonia (NH3) = 594 mg/L (estimated value, concentration exceeded capability of instrumentation)
- Conductivity = 14,140 uS (conversion of conductivity to TDS (i.e. conductivity * 0.65 = TDS) gives an estimated TDS concentration of 936 mg/L)

These values emphasize the importance of a more detailed antidegradation analysis and the need for the imposition of permit limitations. At a flow rate of 10,000 gpd, an ammonia concentration of 594 mg/L is equivalent to a daily loading of 40 lbs of nitrogen to the receiving stream per day. In comparison, assuming a typical ammonia discharge limitation of 2 mg/L (as nitrogen), this loading is equivalent to a municipal discharge flow of 2.4 MGD.

Table 3 of LAC33:IX.1123 establishes numerical criteria and designated uses for the Terrebonne Basin (Code 120109). Numeric standards for chloride, sulfate, dissolved oxygen, pH, bacteria, temperature and total dissolved solids have been established. However, data for these constituents in the proposed discharge is not available and the permit does not require monitoring for these constituents. Thus, it is unknown if this new discharge is likely to impact the receiving stream or contribute to further degradation of the receiving stream. Data derived for a similar wastestream indicate a TDS concentration of approximately 936 mg/L which far exceeds the water quality standard of 300 mg/L established for the Terrebonne Basin. Thus, monitoring

requirements and limitations should be established at the water quality standards developed for the Terrebonne Basin for chloride (60 mg/L), sulfate (40 mg/L) and TDS (300 mg/L).

As noted above, the permit does contain limitations for TOC and BOD. Limits of 50 mg/L TOC are applied to outfalls 001, 002 and 003 and limits of between 25 and 48 mg/L BOD are applied to the internal process monitoring points (outfalls 101 and 102). Due to the nature of the process and sanitary waste streams, discharges from the internal outfalls (101 and 102) are likely to be continuous. However, contributions of stormwater at outfalls 001 and 002 will be intermittent. Thus, for a majority of the time, the discharge at outfalls 001 and 002 will consist solely of process or sanitary wastewater. Given the maximum limits of 45 – 48 mg/L BOD applied to outfalls 101 and 102, the discharges at 001 and 002 are likely to exceed the TOC limit of 50 mg/L. Specifically, 40 CFR 419.52(e) indicates that, for this industry, the relationship between TOC and BOD is: TOC = 2.2 * BOD. Thus, a discharge of 40 mg/L as BOD is roughly equivalent to a TOC of 88 mg/L. Without any dilution, the discharge of BOD from outfall 101 (for example) which is shown to be in compliance at outfall 101 is likely to be out of compliance at outfall 001. Thus, more restrictive limits should be applied at outfalls 101 and 102.

Further, LDEQ has not completed the necessary analyses to demonstrate that a discharge of 50 mg/L TOC from outfalls 001, 002 or 003 or a discharge of 25-48 mg/L BOD from 101 or 102 during non-storm event days, is not likely to contribute to low DO conditions within the receiving ditch. No receiving water flow information is provided in the Fact Sheet. If the flow of the receiving water is low, travel time is slow and temperatures are elevated, the continuous discharge of BOD could create low DO conditions. No information has been provided to demonstrate that this is not likely to be the case.

The Permit Does Not Establish Discharge Limitations for the Sanitary Treatment Facility Consistent with LAC33:IX.709. This section is specific to sanitary and domestic waste discharges with an average flow of less than 2,500 gallons per day. Under this regulation, limits for oil and grease of 20 mg/L have been established. This limitation should be applied to internal outfall 102.

The Categorical Standards were Inappropriately Applied. Categorical standards for the Petroleum Refining Integrated Subcategory (40 CFT 419.50 and following) were applied to the facility. Specifically, categorical standards for contaminated runoff (419.52(e)) were applied to the internal outfall 101. This outfall is described as consisting of process wastewater plus miscellaneous utility water including stormwater. From the description it is unclear if the stormwater is treated as part of the process wastewater or is added to the process wastewater after treatment. Since a process flow diagram was not provided, it is unknown how the process wastewater is managed. Is the process wastewater treated and then combined with miscellaneous and stormwater, or is all of the process/miscellaneous/storm water combined and then treated? If the case is the former, then the limitations developed in 40 CFR 419.52(a) apply to the treated process water and are based on the feedstock production rate. If the latter, then the limitations of 40 CFR 419.52(e) apply and the applicant should demonstrate adequate storage or treatment

capacity to treat a significant storm event without bypass or upset (i.e., a 24-hour, 10-year storm event)[a].

Further, outfalls 001, 002 and 003 all have the potential to contain contaminated stormwater. Thus, the categorical limitations established in 419.52(e) should be applied to these outfalls. In addition, the permit writer should, as noted above, also conduct a water quality analysis to determine if more restrictive water quality based limitations are required. If limitations more restrictive than the categorical standards are identified, they should be applied in lieu of the categorical limits.

Monitoring Requirements are Too Infrequent to Assess Compliance. LDEQ has established quarterly monitoring requirements. Because this is a new discharge and no information is available on the chemical makeup or variability of the wastewater, more frequent sampling should be required.

As noted above, the wastewater sample collected from the comparable facility does not utilize GAC absorption because 1) the COD of the discharge quickly exceeds the capacity of the GAC system and 2) excessively frequent GAC media replacement is required making the process impractical. The implications of this are that monitoring of the process outfall 101 should be conducted at a minimum of weekly because, based on our findings above, the efficiency of the treatment process to reduce aquatic toxicity is likely dependent upon the capacity of the granular activated carbon column. By sampling on a weekly or more frequent basis, LDEQ can be assured that the carbon system is maintained and any breakthrough will be detected before substantial discharge occurs. Quarterly monitoring is insufficient to ensure that the carbon is being properly monitored and replaced when capacity is reached. Note that the GAC system is likely to have minimal impact on TDS or ammonia; thus, there is still a large likelihood that the wastewater will still be toxic even after treatment with GAC.

In addition, sampling of outfalls 001/101 and 002/102 should be coordinated to document 1) events when both stormwater and process or sanitary discharges are occurring and 2) events when only process (from Outfall 101) or sanitary (from outfall 102) are occurring. This will allow the impact of stormwater to each discharge from both a dilution and contaminant perspective.

2.0 Results of Chemical Analysis of Comparable TDU Wastewater

TDU facility wastewater samples were analyzed in support of these comments. Two samples were collected in May 2018 from the TD*X TDU operating at the US Ecology Texas facility in Robstown, TX. During the sampling the TD*X facility was processing waste feeds in both the

[a] The 24-hr, 10-year storm event has a precipitation volume of 8 – 8.5 inches (G.E. Fraiers, 1997, Rainfall frequency/magnitude atlas for the south-central United States. SRCC technical report 97-1). If the facility is intended to treat contaminated stormwater, the permittee should demonstrate that the capacity of the facility is sufficient to treat this volume of water without upset or bypass.

TDU and the centrifuge system that are identical to those proposed for the Thermaldyne facility.

It is important to note that TD*X is required by both EPA Region 6 and TCEQ to dispose of the TDU and centrifuge wastewater as being derived from the treatment of hazardous waste, and carrying all of the listed waste codes of the TDU feed material. Consequently, the treated wastewater is disposed in a RCRA permitted deepwell facility, and is not allowed to be discharged to a surface water in Texas. TD*X uses essentially the same water treatment technologies as are proposed by Thermaldyne.

The table below presents results of lab analysis of the TD*X TDU treated wastewater. Data are presented from samples collected in May 2018 while reclaiming identical petroleum refinery HSM as are proposed for the Thermaldyne facility. Data are also provided from historical sampling over the prior five years.

Treated Wastewater Sample Results – TDU Processing Petroleum Refinery HSM

Parameter	Units	K171-172 Catalyst WW	K048-52, F037 Tank Bottoms WW	Historic TDU Wastewater			
		563-205-11	563-207-28 564-5-22	Min	Max	90% UCI	Samples Analyzed
BOD, 5 day	mg/l	392	391	391	5,200	2,422	20
TSS	mg/l	690	540	2	1,100	289	59
COD	mg/l	>22,000	8,300	913	9,240	6,392	9
Oil and Grease	mg/l	77	442	-	-	-	-
TPH	mg/l	-	-	10	2,600	361	61
2,4 Dimethylphenol	ppm	8.9	9.1	<0.2	13.4	4.8	31
2- Methylphenol	ppm	17	75	0.5	75	20.7	38
3&4 Methylphenol	ppm	17	92	0.8	92	20.7	38
Phenol	ppm	49	350	1.5	350	71	38
Ammonia as N	mg/l	<0.80	<0.5	0.5	1,412	1,013	8
Sulfide	mg/l	<0.05	<0.005	-	-	-	-
Total Chromium	mg/l	0.037	0.033	-	-	-	-
Hexavalent Chromium	mg/l	0.34	<0.0050	-	-	-	-
pH	-	5.9	7.4	4.8	9.5	7.0	50
Arsenic	mg/l		0.44	0.14	0.44	0.34	7
Acetophenone	mg/l		9.6				
Pyridine	mg/l		21				
TOC	mg/l			917	3,540	2,353	6
acetone	mg/l		37.0				
2-butanone (MEK)	mg/l		7.9				
benzene	mg/l		1.2	1.2	16.7	10.0	7
BTEX	mg/			4.2	30.5	23.6	6

3.0 Effluent Limitations

In the draft permit LDEQ established wastewater effluent limitations by applying categorical standards for the Petroleum Refining Integrated Subcategory (40 CFR 419.50 and following) to the facility. Specifically, categorical standards for contaminated runoff (40 CFR 419.52(e)) were applied to the internal outfall 101 as follows:

40 CFR 419.52(e)	Outfall 101 Effluent Limitation	
Pollutant	Monthly Average (mg/l)	Daily Maximum (mg/l)
BOD, 5-day	26	48
Chromium hexavalent ion	0.028	0.062
Chromium, Total (as Cr)	0.43	0.73
COD (low level)	180	360
Oil and grease	8	15
Phenolics, Total Recoverable	0.17	0.35
TSS (Total Suspended Solids)	21	33

This outfall is described as consisting of the intermittent discharge of process wastewater; miscellaneous utility wastewater including, but not limited to, fire system water, eyewash station and safety shower water, boiler blowdown, condensate, general facility washwater, and filter backwash; and stormwater runoff. Due to the highly toxic nature of the process wastewater and because stormwater runoff is merely incidental to the facility's principal wastewater discharge, the effluent standards of 40 CFR 419.52(a), corrected using the size factors and process factors given by 40 CFR 419.52(b), should be used to establish effluent limitations:

Size Factor = 0.73 Process Factor = 0.75	Effluent Limitation 419.52(a)		**Effluent Limitation Corrected 419.52(b)**	
Pollutant	Monthly Average (mg/l)	Daily Maximum (mg/l)	**Monthly Average (mg/l)**	**Daily Maximum (mg/l)**
BOD, 5-day	28.9	54.4	**15.8**	**29.8**
Chromium hexavalent ion	0.032	0.068	**0.018**	**0.037**
Chromium, Total (as Cr)	0.48	0.82	**0.26**	**0.45**
COD (low level)	198	388	**108**	**212**
Oil and grease	9.1	17.1	**5.0**	**9.4**
Phenolics, Total Recoverable	0.192	0.40	**0.105**	**0.2**
TSS (Total Suspended Solids)	23.7	37.3	**13.0**	**20.4**
Ammonia as N	10.6	23.4	**5.8**	**12.8**
Sulfide	0.158	0.35	**0.087**	**0.19**

These effluent limitations are recommended in addition to appropriate monitoring for aquatic toxicity as presented above in Section 1.

I am also providing detailed itemized comments on both the published Draft Permit as well as the Thermaldyne permit application documents. These comments are provided on the following pages.

Sincerely,

Carl R Palmer 2018.06.07 16:19:36 -04'00'

Carl R. Palmer, P.E.

Cc: Dr. Kishor Fruitwala EPA Region 6
Robert Luschek EPA Region 6

ITEMIZED COMMENTS ON DRAFT LPDES DISCHARGE PERMIT

Page 1 of 13. Monitoring Requirements. The frequency of monitoring the carbon filter effluent should be greater than quarterly, at least at the initial. Lab analysis data show the TOC level of TDU wastewater is likely to be well above 1000 ppm (reference COD of TD*X wastewater at 6,034 ppm). The typical carbon filter in this application has 2,000 lb of activated carbon, with a capacity for pollutant removal of about 1% by weight of the pollutant (i.e. 20 lb of pollutant will expend a 2,000 lb carbon filter). At 10,000 gal/day and 1,000 ppm pollutant loading, there is 83 lb of pollutants. It is quite likely that the carbon will be spent within a day or so of being placed into service. Daily (or weekly at the very least) monitoring should be required to establish breakthrough of the carbon, then an appropriate monitoring frequency established after the breakthrough study is performed.

Page 2 of 13. N-3. Prohibition of aquatic toxicity. This prohibition addresses the fact that the effluent TDU wastewater is likely to exhibit aquatic toxicity. The monitoring table on the previous page should require an initial demonstration that the wastewater, especially from "previously monitored" Outfall 101, not exhibit aquatic toxicity.

Page 3 of 13. Monitoring Requirements. SAME as above.

Also, include a requirement to monitor nitrogen and sulfides, two wastewater constituents that are known to be present in TDU wastewater from processing petroleum refinery HSM, that are appropriately limited for this industry, and that exhibit water toxicity.

Page 20 of pdf (Other Conditions).

A. This permit does not in any way authorize the permittee to discharge a pollutant not listed or quantified in the application or limited or monitored for in this permit.

The permit application does not disclose the likely discharge of a mixture of volatile and semi-volatile organic compounds. Testing of comparable treated wastewater from the TD*X TDU in Robstown, TX demonstrates the presence of benzene and acetone, as well as other VOCs and SVOCs. No effluent limitations or monitoring requirements have been identified for these compounds, primarily because Thermaldyne has not disclosed their presence in the facility water discharge permit application.

ATTACHMENTS

Results Of Acute And Chronic Toxicity Testing With *Ceriodaphnia dubia* and *Pimephales promelas* On A May 2018 Effluent Sample From TD*X ASSOCIATES LP, EA Engineering Science and Technology, EA Report No 7762, June 6, 2018.

RESULTS OF ACUTE AND CHRONIC TOXICITY TESTING WITH *Ceriodaphnia dubia* AND *Pimephales promelas* ON A MAY 2018 EFFLUENT SAMPLE FROM TD*X ASSOCIATES LP

Prepared for:

TD*X Associates LP
3277 County Road 69
Robstown, Texas 78380

Prepared by:

EA Engineering, Science, and Technology, Inc., PBC
231 Schilling Circle
Hunt Valley, Maryland 21031
For questions, please contact Michael Chanov
ph: 410-584-7000

Results relate only to the items tested or to the samples as received by the laboratory.

This report shall not be reproduced, except in full, without written approval of EA Engineering, Science, and Technology, Inc., PBC

This report contains 13 pages plus 2 attachments.

June 6, 2018

Michael K. Chanov II
Laboratory Director

Date

EA Project Number 70005.15

ACCREDITED IN ACCORDANCE WITH nelac ID# E87550

EA Report Number 7762

INTRODUCTION

At the request of TD*X Associates, EA Engineering, Science, and Technology performed acute and chronic toxicity tests on a sample of effluent provided by TD*X Associates. The acute and chronic toxicity tests were conducted with the water flea (*Ceriodaphnia dubia*) and the fathead minnow (*Pimephales promelas*). A sample effluent and was collected on 29 May 2018. The test organisms were exposed to 100, 50, 25, 12.5 and 6.25 percent sample, and a laboratory dilution water control.

The toxicity testing was conducted following EA's standard operating procedures (EA 2018), which are in accordance with US EPA guidance (US EPA 2002a, 2002b). The results of the chronic toxicity tests were statistically analyzed according to US EPA guidance (2002a) to determine if any effluent concentration was significantly different from the control with respect to survival, reproduction (*C. dubia*), or biomass (*P. promelas*). For the acute toxicity tests, the median lethal concentration (LC50) was calculated if there was at least 50 percent mortality in the 100 percent effluent concentration. The short-term chronic toxicity test endpoints are expressed as the No Observed Effect Concentration (NOEC), the Lowest Observed Effect Concentration (LOEC), and the Chronic Value (ChV). The median lethal concentration (LC50), and the 25 percent and 50 percent Inhibition Concentrations (IC25 and IC50) were also calculated for each test species. The test data were analyzed using the ToxCalc statistical software package (Version 5.0, Tidepool Scientific Software). Summaries of *C. dubia* and *P. promelas* acute toxicity test information are presented on pages 5-8, and summaries of the chronic toxicity test information are presented on pages 9-12. Table 1 summarizes selected water quality parameters of the samples. Copies of raw data sheets with statistical analyses, and the Report Quality Assurance Record are included in Attachments I and II, respectively.

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SUMMARY OF RESULTS

The May 2018 *Ceriodaphnia dubia* and *Pimephales promelas* acute and chronic toxicity tests conducted for TD*X Associates comply with current NELAC standards, with exceptions noted.

The results of the *C. dubia* acute toxicity tests with the effluent sample are presented on page 6. After 24 and 48 hours in the effluent test, there was 0 percent survival in the all percent effluent concentrations. There was 100 percent survival in the laboratory control. The effluent 24-hour and 48-hour LC50s for *C. dubia* were <6.25 percent effluent.

The results of the *P. promelas* acute toxicity tests with the effluent sample are presented on page 8. In the test with the effluent sample, at the end of 24 and 48 hours, there was 0 percent survival in the percent effluent concentrations, and 100 percent survival in the laboratory control. The resulting *P. promelas* 24-hour and 48-hour LC50s for the final effluent sample were <6.25 percent effluent.

The results of the *C. dubia* chronic toxicity tests on the effluent sample are presented on page 10. After 24 and 48 hours of exposure in the final effluent test, there was 0 percent survival in the percent effluent concentrations and there was 100 percent survival in the laboratory control. The resulting 24 and 48-hour LC50 value was <6.25 percent effluent. Since there was 100 percent mortality in all test concentrations, the test was terminated after 48 hours. The NOEC, IC25 and ChV for this test were <6.25 percent effluent. The LOEC was 6.25 percent effluent.

The *P. promelas* chronic toxicity test results are summarized on page 12. After 24 and 48 hours of exposure in the final effluent test, there was 0 percent survival in the percent effluent concentrations and there was 100 percent survival in the laboratory control. The resulting 24 and 48-hour LC50 value was <6.25 percent effluent. Since there was 100 percent mortality in all test concentrations, the test was terminated after 48 hours. The NOEC, IC25 and ChV for this test were <6.25 percent effluent. The LOEC was 6.25 percent effluent.

In conformance with EA's quality assurance/quality control program, monthly acute and chronic reference toxicant tests were conducted on the test species. The results of May 2018 reference toxicant tests were within acceptable control chart limits, and are summarized on pages 5 and 7 for the *C. dubia* and *P. promelas* acute toxicity tests, and on pages 9 and 11 for the chronic toxicity tests.

REFERENCES

EA. 2018. EA Ecotoxicology Laboratory Quality Assurance and Standard Operating Procedures Manual. EA Manual ATS-102. Internal document prepared by EA's Ecotoxicology Laboratory, EA Engineering, Science, and Technology, Inc., PBC, Hunt Valley, Maryland.

US EPA. 2002a. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition. EPA-821-R-02-012. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

US EPA. 2002b. Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Fourth Edition. EPA-821-R-02-013. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

SUMMARY OF SAMPLE/TEST INFORMATION

Test: ***Ceriodaphnia dubia* 48-hour static acute LC50 assay**

Test Procedure: **EA Protocol CD-AC-05**
Acute assay with *Ceriodaphnia dubia*

Client Name: **TD*X Associates, Texas**

Sample Description: **Effluent**

EA Accession Number	Collection Time and Date	Receipt Time and Date	Sample Usage
AT8-335	0730-0834, 29 May 2018	1115, 30 May 2018	Entire test

EA Test Number: **TN-18-424**

Test Initiation Time and Date: 1203, 30 May 2018
Test Completion Time and Date: 1126, 1 June 2018

Dilution Water Description: **Moderately hard synthetic freshwater**

Test Chamber: **30-ml cup**

Volume per Test Chamber: **15 ml**

Number of Replicates: **4**

Number of Organisms per Replicate: **5**

Organism Lot Information

Lot Number: Not applicable
Source: EA's Culture Facility (Hunt Valley, Maryland)
Age: <24 hours

Reference Toxicant Test Information

Reference Toxicant: Sodium chloride (NaCl)
EA Test Number: RT-18-096
48-hour LC50: 1,980 mg/L NaCl
Laboratory control chart acceptability range for LC50: 1,484-2,306 mg/L NaCl

SUMMARY OF SAMPLE/TEST INFORMATION (continued)

Test Species:	***Ceriodaphnia dubia* (water flea)**
Test:	**48-hour Acute Test**
Client Name:	**TD*X Associates, Texas**
Sample Dates:	**29 May 2018**

Sample Description:	Effluent
EA Accession Number:	AT8-335
EA Test Number:	TN-18-424

Test Concentration (percent effluent)	48-Hour Survival (percent)
Control	100
6.25	0
12.5	0
25	0
50	0
100	0

Test Results (as percent effluent)

48-Hour LC50: **<6.25**

Selected Test Water Quality Parameters	Range
Temperature (°C):	24.1 – 25.0
pH:	6.3 – 8.1
Dissolved Oxygen (mg/L):	1.8 – 8.1
Conductivity (µS/cm):	326 – 14,570

SUMMARY OF SAMPLE/TEST INFORMATION

Test: ***Pimephales promelas* 48-hour static acute LC50 assay**

Test Procedure: **EA Protocol FH-AC-05**
Acute assay with fathead minnows (*Pimephales promelas*)

Client Name: **TD*X Associates, Texas**

Sample Description: **Effluent**

EA Accession Number	Collection Time and Date	Receipt Time and Date	Sample Usage
AT8-335	0730-0834, 29 May 2018	1115, 30 May 2018	Entire test

EA Test Number: **TN-18-425**

Test Initiation Time and Date: 1215, 30 May 2018
Test Completion Time and Date: 1130, 1 June 2018

Dilution Water Description: **Moderately hard synthetic freshwater**

Test Chamber: **1-L beaker**

Volume per Test Chamber: **250 ml**

Number of Replicates: **2**

Number of Organisms per Replicate: **10**

Organism Lot Information

Lot Numbers: FH8-5/21-22
Source: EA's Culture Facility (Hunt Valley, Maryland)
Age: 8-9 days (hatched within a 24 hour window)

Reference Toxicant Test Information

Reference Toxicant: Potassium chloride (KCl)
EA Test Number: RT-18-092
48-hour LC50: 1,057 mg/L KCl
Laboratory control chart acceptability range for LC50: 796-1,241 mg/L KCl

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SUMMARY OF SAMPLE/TEST INFORMATION (continued)

Test Species:	***Pimephales promelas* (Fathead minnow)**
Test:	**48-hour Acute Test**
Client Name:	**TD*X Associates, Texas**
Sample Dates:	**29 May 2018**

Sample Description:	Effluent
EA Accession Number:	AT8-335
EA Test Number:	TN-18-425

Test Concentration (percent effluent)	48-Hour Survival (percent)
Control	100
6.25	0
12.5	0
25	0
50	0
100	0

Test Results (as percent effluent)

48-Hour LC50: **<6.25**

Selected Test Water Quality Parameters	Range
Temperature (°C):	24.1 – 25.6
pH:	6.3 – 8.1
Dissolved Oxygen (mg/L):	0.5 – 8.1
Conductivity (µS/cm):	326 – 14,140

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SUMMARY OF SAMPLE/TEST INFORMATION

Test: ***Ceriodaphnia dubia* daily renewal chronic toxicity test**

Test Procedure: **EA Protocol CD-CH-05**
Survival and reproduction test with cladoceran (*Ceriodaphnia dubia*)

Client Name: **TD*X Associates, Texas**

Sample Description: **Effluent**

EA Accession Number	Collection Time and Date	Receipt Time and Date	Sample Usage
AT8-335	0730-0834, 29 May 2018	1115, 30 May 2018	Entire test

EA Test Number: **TN-18-423**

Test Initiation Time and Date: 1208, 30 May 2018
Test Completion Time and Date: 1108, 1 June 2018[(a)]

Dilution Water Description: **Moderately hard synthetic freshwater**

Test Vessel: **30-ml cup**

Test Volume: **15 ml**

Number of Organisms per Replicate: **1**

Number of Replicates per Concentration: **10**

Photoperiod: **16-hour light/8-hour dark**

Organism Lot Information
Lot Number: Not applicable
Source: EA's Culture Facility (Hunt Valley, Maryland)
Age: <24 hours old (released within an 8-hour period)

Reference Toxicant Test Information
Reference Toxicant: Potassium chloride (KCl)
EA Test Number: RT-18-088
6-Day IC25: 298 mg/L KCl
Laboratory control chart acceptability range for chronic IC25: 167-478 mg/L KCl

(a) Test terminated at 48 hours due to 100 percent mortality in test concentrations at 24 hours.

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SUMMARY OF SAMPLE/TEST INFORMATION (continued)

Test Species:	***Ceriodaphnia dubia* (water flea)**
Test:	**Survival and reproduction test**
Client Name:	**TD*X Associates, Texas**
Sample Dates:	**29 May 2018**

Sample Description:	**Effluent**
EA Accession Number:	**AT8-335**
EA Test Number:	**TN-18-423**

Test Concentration (percent effluent)	48-Hour % Survival	Mean Young Production as Neonates/Organism (±SD)
Control	90	N/A[b]
6.25	0[a]	N/A
12.5	0[a]	N/A
25	0[a]	N/A
50	0[a]	N/A
100	0[a]	N/A
Test Results (as percent effluent)		
NOEC:	<6.25	<6.25
LOEC:	6.25	6.25
CHV:	<6.25	<6.25
IC25:	<6.25	<6.25

Selected Test Water Quality Parameters	Range
Temperature (°C):	24.0 – 24.8
pH:	6.3 – 8.1
Dissolved Oxygen (mg/L):	0.2 – 8.3
Conductivity (µS/cm):	326 – 14,140

(a) Significantly different than the control (p=0.05)
(b) Test terminated at 48 hours due to 100 percent mortality in test concentrations at 24 hours.

SUMMARY OF SAMPLE/TEST INFORMATION

Test: ***Pimephales promelas* daily renewal chronic toxicity test**

Test Procedure: **EA Protocol FH-CH-05**
Larval survival and growth test with fathead minnows (*Pimephales promelas*)

Client Name: **TD*X Associates, Texas**

Sample Description: **Effluent**

EA Accession Number	Collection Time and Date	Receipt Time and Date	Sample Usage
AT8-335	0730-0834, 29 May 2018	1115, 30 May 2018	Entire test

EA Test Number: **TN-18-426**

Test Initiation Time and Date: 1220, 30 May 2018
Test Completion Time and Date: 1129, 1 June 2018[(a)]

Dilution Water Description: **Moderately hard synthetic freshwater**

Test Vessel: **1-L beaker**

Test Volume: **250 ml**

Number of Organisms per Replicate: **10**

Number of Replicates per Concentration: **4**

Photoperiod: **16-hour light/8-hour dark**

Organism Lot Information

Lot Number: FH-361
Source: Aquatic BioSystems (Fort Collins, Colorado)
Age: <24 hours old

Reference Toxicant Test Information

Reference Toxicant: Potassium chloride (KCl)
EA Test Number: RT-18-087
7-Day IC25: 625 mg/L KCl
Laboratory control chart acceptability range for IC25: 425-746 mg/L KCl

(a) Test terminated at 48 hours due to 100 percent mortality in test concentrations at 24 hours.

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SUMMARY OF SAMPLE/TEST INFORMATION (continued)

Test Species:	***Pimephales promelas* (fathead minnow)**
Test:	**Survival and growth test**
Client Name:	**TD*X Associates, Texas**
Sample Dates:	**29 May 2018**

Sample Description:	**Effluent**
EA Accession Number:	**AT8-335**
EA Test Number:	**TN-18-426**

Test Concentration (percent effluent)	48-Hour % Survival	Mean Biomass as mg/Organism (±SD)
Control	100	N/A[b]
6.25	0[a]	N/A
12.5	0[a]	N/A
25	0[a]	N/A
50	0[a]	N/A
100	0[a]	N/A
Test Results (as percent effluent)		
NOEC:	<6.25	<6.25
LOEC:	6.25	6.25
CHV:	<6.25	<6.25
IC25:	<6.25	<6.25

Selected Test Water Quality Parameters	Range
Temperature (°C):	24.0 – 25.1
pH:	6.3 – 8.1
Dissolved Oxygen (mg/L):	1.4 – 8.3
Conductivity (µS/cm):	326 – 14,140

(a) Significantly different than the control (p=0.05).
(b) Test terminated at 48 hours due to 100 percent mortality in test concentrations at 24 hours.

ED_002099_0000533-00024

TABLE 1 SUMMARY OF WATER QUALITY PARAMETERS MEASURED UPON RECEIPT OF MAY 2018 SAMPLES FROM TD*X ASSOCIATES

EA Accession Number	Temperature (°C)	pH	Total Residual Chlorine (mg/L)	Alkalinity (mg/L as $CaCO_3$)	Hardness (mg/L as $CaCO_3$)	Conductivity (µS/cm)	Ammonia (mg/L)
Effluent:							
AT8-335	13.8[(a)]	6.5	<0.01	1,730	Matrix Interference	14,320	594

(a) Receipt temperature was greater than 6.0°C.

ED_002099_0000533-00025

ATTACHMENT I

Data Sheets and Statistical Analyses
(33 pages)

Chain-of-Custody Record

EA Engineering, Science, and Technology

EA Ecotoxicology Laboratory
231 Schilling Circle
Hunt Valley, Maryland 21031
Telephone: 410-584-7000
Fax: 410-584-1057

Client: TDX Associates Project No.:

NPDES Number: Client Purchase Order Number:

City/State Collected: Robstown, TX

Sample Shipped By: (circle)
(Fed. Ex.) UPS Other:
Tracking #: 7123 4019 0067

PLEASE READ SAMPLING INSTRUCTIONS ON BACK OF FORM

Accession Number (office use only)	Grab	Composite	Collection Start Date/Time	Collection End Date/Time	Sample Description (including Site, Station Number, and Outfall Number)	Number/Volume of Container
AB-335		✓	5/29/18 0720	5/29/18 0834	564-5-19	5gallons

Sampled By:	Date/Time	Received By:	Date/Time
Jose Salazar	5/29/18 1101		
Sampler's Printed Name:	Title:	Relinquished By:	Date/Time
Jose Salazar	Engineer		
Relinquished By:	Date/Time	Received By Laboratory	Date/Time
			5/30/18 1115

Was Sample Chilled During Collection? (Yes) / No

Comments:

Sample Collection Parameters

Visual Description: Dark brown water

Temperature (°C):

pH:

TRC (mg/L): N/A

Other:

White-Report Production
EA 0534 F&B Rev.9/12

Yellow-Laboratory

Pink-Client/Sampler

SAMPLE CHECK-IN
FOR TESTING

Client: TDX

EA Accession Number: AT8-335

Parameter	Acceptable Range	Measurement*	Date	Time	Initials
Temperature (°C)	≤4	13.8*	5/30/18	1115	MJ
Is ice present?	---	melted	↓	↓	↓
pH	6.0-9.0	6.5			
TRC (mg/L)	<0.01	<0.01			
Visual Description	---	Brown	↓	↓	↓

***If outside acceptable range, contact project manager.**

***OTHER PARAMETERS IF REQUIRED (SEE STUDY PLAN)*:**

Parameter	Acceptable Range	(✓)	Date	Time	Initials
Ammonia (preserve aliquot)	--	✓	5/30/18	1115	MJ
Parameter	**Acceptable Range**	**Measurement***	**Date**	**Time**	**Initials**
Salinity (ppt)	--				

FedEx: 7723 4019 0067

ATS-Q25
03/01/00

TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18-424

TEST ORGANISM INFORMATION

Common Name: Water flea

Scientific Name: *C.dubia*

Lot Number: N/A

Source: EA

Adults Isolated (Time, Date): 5/29/18 1415

Neonates Pulled & Fed (Time, Date): 5/29/18 1650

Acclimation: <24 hrs Age: ≤24 hrs

Culture Water (T/S): 24.5 °C 0 ppt

TEST SET-UP

TEST INITIATION

Date	Time	Initials	Activity
5/30/18	1145	JR	Dilutions Made
	1203	MJ	Test Vessels Filled
	1225	BO	Organisms Transferred
			Head Counts

CONCENTRATION SERIES

Test Concentration	Volume Test Material	Final Volume
Control	0 ml	200 ml
6.25%	12.5ml	
12.5%	25ml	
25%	50ml	
50%	100ml	
100%	200ml	

Comments:

INTERMEDIATE DILUTION PREPARATION AND FEEDING

DILUTION PREPARATION

Day	Date	Time	Initials	Sample / Diluent
0	5/30/18	1145	JR	ATS-335 / LDB-356
1				
2				
3				
4				
5				
6				

FEEDING

Food:

Day	Time, Initials, Amount	Time, Initials, Amount	Time, Initials, Amount
0			
1			
2			
3			
4			
5			
6			

ACUTE TOXICITY TEST DATA SHEET

Project Number: 70005.15
Client: TDX
QC Test Number: TN- 18-424
Test Material: Effluent
renewal
Accession Number: A08- 335
Dilution Water: Mod Hard
Accession Number: L08- 356

TEST ORGANISM
Common Name: Water flea
Scientific Name: *C.Dubia*
TARGET VALUES

Beginning Date: 5/30/18 Time: 1203
Ending Date: 6/1/18 Time: 1126
TEST TYPE: (Static) / Flowthrough
( ) / (Renewal) / Non-

Temp: 25±1 °C DO: >4.0 mg/L Test Container: 30 ml cup
pH: 6.0 - 9.0 Salinity: 0 ppt Test Volume: 25 ml
Photoperiod: 16 l, 8 d Light Intensity: 50 - 100 fc Test Duration: 48 hrs

Concentration	Rep	Number of Live Organisms 0	24	48	72	96	Temperature (°C) 0	24	48	72	96	pH 0	24	48	72	96	Dissolved Oxygen (mg/L) 0	24	48	72	96	~~Conductivity (µS/cm)~~ Salinity (ppt) 0	24	48	72	96
Control	A	5	5	5			24.1	24.5	24.5			7.1	6.8	8.1			8.1	7.0	7.3			326	354	366		
	B	5	5	5																						
	C	5	5	5																						
	D	5	5	5																						
6.25	A	5	0	-			24.2	24.5	-			6.8	6.7	-			8.1	3.7	-			1376	1328	-		
	B	5	0	-																						
	C	5	0	-																						
	D	5	0	-																						
12.5	A	5	0	-			24.2	24.8	-			6.7	6.8	-			8.1	1.8	-			2318	2257	-		
	B	5	0	-																						
	C	5	0	-																						
	D	5	0	-																						
Meter Number							679	678	679			679	678	679			679	678	679			679	678	679		
Time		1225	1116	1126			1153	0920	1015			1153	0920	1015			1153	0920	1015			1153	0920	1015		
Initials		BO	QB	~			NM	JR	~			NM	JR	~			NM	JR	~			NM	JR	~		

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Fathead:2000.0 Americamysis: 2007.0 Menidia:2006.0
Magna/pulex: 2021.0 x Trout: 2019.0 Cyprinodon: 2004.0 OTHER:

12/02/08
ATS-T01

ED_002099_0000533-00030

ACUTE TOXICITY TEST DATA SHEET

Project Number: 70005.15
Client: TDX
QC Test Number: TN- 18-424
Test Material: Effluent
Accession Number: ATS- 335
Dilution Water: Mod Hard
Accession Number: 608- 356

TEST ORGANISM
Common Name: Water flea
Scientific Name: *C.dubia*

TARGET VALUES
Temp: 25±1 °C
pH: 6.0 - 9.0
Photoperiod: 16 ℓ, 8 d
DO: >4.0 mg/L
Salinity: 0 ppt
Light Intensity: 50 - 100 fc

Beginning Date: 5/30/18 Time: 1203
Ending Date: 6/1/18 Time: 1126
TEST TYPE: (Static) / Flowthrough
Renewal / (Non-renewal)
Test Container: 30 ml cup
Test Volume: 25 ml
Test Duration: 48 hrs

Concentration	Rep	Number of Live Organisms 0	24	48	72	96	Temperature (°C) 0	24	48	72	96	pH 0	24	48	72	96	Dissolved Oxygen (mg/L) 0	24	48	72	96	Conductivity (µS/cm) / Salinity (ppt) 0	24	48	72	96
25	A	5	0	–			24.2	24.9	–			6.6	6.7	–			8.1	2.7	–			4183	4190	–		
	B	5	0	–																						
	C	5	0	–																						
	D	5	0	–																						
50	A	5	0	–			24.2	25.0	–			6.3	6.5	–			8.0	5.0	–			7774	7707	–		
	B	5	0	–																						
	C	5	0	–																						
	D	5	0	–																						
100	A	5	0	–			24.2	25.0	–			6.4	6.3	–			7.5	6.0	–			14140	14570	–		
	B	5	0	–																						
	C	5	0	–																						
	D	5	0	–																						
Meter Number							679	678	679			679	678	679			679	678	679			679	678	679		
Time		1225	1116	1122			1153	0920	1015			1153	0920	1015			1153	0920	1015			1153	0920	1015		
Initials		BO	EB	–			JR	JR	–			JR	JR	–			JR	JR	–			JR	JR	–		

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0 Fathead:2000.0 Americamysis: 2007.0 Menidia:2006.0
Magna/pulex: 2021.0 x Trout: 2019.0 Cyprinodon: 2004.0 OTHER:

12/02/08
ATS-T01

ED_002099_0000533-00031

RANDOMIZATION CHART

Project Number: 70005.15

Client: TDX

QC Test Number: TN-18-424

5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5

ATS-T48c
03/01/00

TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN-18-424

Date/Time/Initials	Comments/Activity

ATS-T29
03/01/00

TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18-424

Correction Explanations

(a) Technician Error-Mathematical

(b) Technician Error-Manual Data Recording

(c) Technician Error-Head Count Observation

(d) Technician Error-Overwrite

(e) Technician Error-Missing Data

(f) Technician Error-Lost Organism

(g) Technician Error-Transcription Error

(h) Technician Error-Other:

(i) Meter Malfunction

TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18-425

TEST ORGANISM INFORMATION

Common Name: Fathead minnow

Scientific Name: *P. promelas*

Lot Number: FH8-5|21-22

Source: EA

Adults Isolated (Time, Date): —

Neonates Pulled & Fed (Time, Date): —

Acclimation: <24 hrs Age: 8-9 days

Culture Water (T/S): 25.6 °C 0 ppt

TEST SET-UP

TEST INITIATION

Date	Time	Initials	Activity
5|30|18	1145	JR	Dilutions Made
			Test Vessels Filled
	1215	MJ	Organisms Transferred
	1226	JR	Head Counts

CONCENTRATION SERIES

Test Concentration	Volume Test Material	Final Volume
Control	0 ml	500 ml
6.25%	31.25ml	
12.5%	62.5ml	
25%	125ml	
50%	250ml	
100%	500ml	

Comments:

INTERMEDIATE DILUTION PREPARATION AND FEEDING

DILUTION PREPARATION

Day	Date	Time	Initials	Sample / Diluent
0	5/30/18	1145	MJJR	AT8-335 / LD8-356
1				
2				
3				
4				
5				
6				

5/30 MJJR

FEEDING

Food:

Day	Time, Initials, Amount	Time, Initials, Amount	Time, Initials, Amount
0			
1			
2			
3			
4			
5			
6			

ACUTE TOXICITY TEST DATA SHEET

Project Number: 70005.15 | TEST ORGANISM | Beginning Date: 5/30/18 Time: 1215

Client: TDX | Common Name: Fathead minnow | Ending Date: 6/1/18 Time: 1130

QC Test Number: TN-18-425 | Scientific Name: *P. promelas* | TEST TYPE: (Static) / Flowthrough

Test Material: Effluent | TARGET VALUES | Renewal (Non-renewal)

Accession Number: AT8-335 | Temp: 25±1 °C | DO: >4.0 mg/L | Test Container: 1 L Beaker

Dilution Water: Mod Hard | pH: 6.0 - 9.0 | Salinity: 0 ppt | Test Volume: 250 ml

Accession Number: LD8-356 | Photoperiod: 16 ℓ, 8 d | Light Intensity: 50 - 100 fc | Test Duration: 48 hrs

Concentration	Rep	Number of Live Organisms					Temperature (°C)					pH					Dissolved Oxygen (mg/L)					Conductivity (µS/cm) Salinity (ppt)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
Control	A	10	10	10			24.1	24.4	24.3			7.1	7.7	8.1			8.1	7.8	7.7			326	346	356		
	B	10	10	10																						
6.25	A	10	0	–			24.2	25.0	–			6.8	6.8	–			8.1	0.83	–			1776	1363	–	–	
	B	10	0	–																						
12.5	A	10	0	–			24.2	25.5	–			6.7	6.8	–			8.1	0.46	–			2318	2304	–	–	
	B	10	0	–																						
25	A	10	0	–			24.2	25.6	–			6.6	6.7	–			8.1	2.6	–			4183	4144	–	–	
	B	10	0	–																						
50	A	10	0	–			24.2	25.6	–			6.3	6.5	–			8.0	5.1	–			7738	7587	–		
	B	10	0	–																						
100	A	10	0	–			24.2	25.5	–			6.4	6.3	–			7.5	5.6	–			14140	14030	–		
	B	10	0	–																						
Meter Number							679	678	674			679	678	674			679	678	674			679	678	674		
Time		1226	1116	1130			1153	0902	1012			1153	0902	1012			1153	0902	1012			1153	0902	1012		
Initials		JR	CWP	–			NM	JR	–			NM	JR	–			NM	JR	–			NM	JR	–		

EPA Test Method: EPA 821-R-02-012 (CHECK ONE)

Ceriodaphnia: 2002.0____ Fathead:2000.0__X__ Americamysis: 2007.0_____ Menidia:2006.0_____

Magna/pulex: 2021.0_____ Trout: 2019.0_____ Cyprinodon: 2004.0_____ OTHER: _____

12/02/08
ATS-T01

ED_002099_0000533-00036

RANDOMIZATION CHART

Project Number: 70005.15

Client: TDX

QC Test Number: TN-18-425

6	2	4	1	5	3
4	1	2	6	3	5

ATS-T48c
03/01/00

TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN-18-425

Date/Time/Initials	Comments/Activity

ED_002099_0000533-00038

TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN-18-425

Correction Explanations

(a) Technician Error-Mathematical

(b) Technician Error-Manual Data Recording

(c) Technician Error-Head Count Observation

(d) Technician Error-Overwrite

(e) Technician Error-Missing Data

(f) Technician Error-Lost Organism

(g) Technician Error-Transcription Error

(h) Technician Error-Other:

(i) Meter Malfunction

C. dubia CHRONIC TOXICITY TEST DATA SHEET

Test Method: EPA 821-R-02-013 (1002.0) Beginning Date: 5/30/18

Time: 1208

Project Number: 70005.15 Ending Date: 6/1/18 Time: 1102

Client: TDX

QC Test Number: TN- 18-423 Adults Isolated Date: 5/29/18 Time: 1415

Test Material: Neonates Pulled Date: 5/30/18 Time: 0825

Accession Number: AT8-335 Age of Neonates: <24 hrs Brood Size: 8+

Dilution Water: Mod Hard Source: EA

Accession Number: LD8-356 Culture Water Temperature: 25.1 °C

Test Container: 30 mL cup Test Volume: 15 mL Photoperiod: 16 L, 8 D Light Intensity: 50 - 100 fc

TEST SET-UP

TEST INITIATION

Date	Time	Initials	Activity
5/30/18	~~1208~~ 1145 5/30 (bi	JR JR	Dilutions Made
	1208		Test Vessels Filled
			Organisms Transferred
	1240	MJ	Head Counts

CONCENTRATION SERIES

Test Concentration	Volume Test Material	Final Volume
Mod Hard Control	0ml	200ml
6.25%	12.5ml	
12.5%	25ml	
25%	50ml	
50%	100ml	
100%	200ml	

Comments:

INTERMEDIATE DILUTION PREPARATION AND FEEDING

DILUTION PREPARATION

Day	Date	Time	Initials	Sample / Diluent
0	5/30/18	1145	JR	AT8-335 / LD8-356
1	5/31/18	0835	JR	LD8-347
2				
3				
4				
5				
6				

FEEDING

Food: YCT + *Selenastrum capricornutum*

Day	Date	Time	Initials	Amount
0	5/30/18	1235	JR	200 µl
1	5/31/18	0911	JR	200 µl
2				
3				
4				
5				
6				

Ceriodaphnia dubia CHRONIC TOXICITY TEST

Client: TDX QC Test Number: TN- 18-423

First column=# neonates ; Second column = 0 (female), 1 (dead female), 2 (male), 3 (dead male), 9 (lost replicate)

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
Mod Hard Control	1	0 0	0 0	0 0	0 0	0 0	0 0	0 1	0 0	0 0	0 0	0904 JR
	2	0 0	0 0	0 0	0 0	0 0	0 0	↓ ↓	0 0	0 0	0 0	1100
	3											
	4											
	5											
	6											
	7											

Total # Neonates:

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
6.25%	1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	JR
	2	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	
	3											
	4											
	5											
	6											
	7											

Total # Neonates:

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
12.5%	1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	JR
	2	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	
	3											
	4											
	5											
	6											
	7											

Total # Neonates:

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
25%	1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	JR
	2	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	
	3											
	4											
	5											
	6											
	7											

Total # Neonates:

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
50%	1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	JR
	2	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	
	3											
	4											
	5											
	6											
	7											

Total # Neonates:

Concentration	Day	1	2	3	4	5	6	7	8	9	10	Time/Initials
100%	1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	0 1	JR
	2	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	↓ ↓	
	3											
	4											
	5											
	6											
	7											

Total # Neonates:

Neonate totals checked (date, initials): _____

TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

Project Number: 70005.15
Client: TDX
QC Test Number: TN- 18-423

TEST ORGANISM
Common Name: Water flea
Scientific Name: *C. dubia*

Beginning Date: 5/30/18 Time: 1208
Ending Date: 6/1/18 Time: 1108

TARGET VALUES: Temp: 25±1 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 0 ppt Photoperiod: 16 & 8 d Light Intensity: 50 - 100 fc

Test Conc	Rep	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Conductivity (µS/cm) Salinity (ppt)						
		0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6
MH Control		24.1	24.0	"	"	"	"	"	7.1	8.0	"	"	"	"	"	8.1	8.3	"	"	"	"	"	326	346	"	"	"	"	"
6.25%		24.2	—	—	—	—	—	—	6.8	—	—	—	—	—	—	8.1	—	—	—	—	—	—	1376	—	—	—	—	—	—
12.5%		24.2	—	—	—	—	—	—	6.7	—	—	—	—	—	—	8.1	—	—	—	—	—	—	2318	—	—	—	—	—	—
25%		24.2	—	—	—	—	—	—	6.6	—	—	—	—	—	—	8.1	—	—	—	—	—	—	4183	—	—	—	—	—	—
50%		24.2	—	—	—	—	—	—	6.3	—	—	—	—	—	—	8.0	—	—	—	—	—	—	7738	—	—	—	—	—	—
100%		24.2	—	—	—	—	—	—	6.4	—	—	—	—	—	—	7.5	—	—	—	—	—	—	14140	—	—	—	—	—	—
Meter Number		679	678						679	678						679	678						679	678					
Time		1153	0840						1153	0840						1153	0840						1153	0840					
Initials		MM	JR						MM	JR						MM	JR						MM	JR					

ED_002099_0000533-00042

TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15
Client: TDX
QC Test Number: TN-18-423

TEST ORGANISM
Common Name: Water flea
Scientific Name: *C. dubia*

Beginning Date: 5/30/18 Time: 1208
Ending Date: 6/1/18 Time: 1102

TARGET VALUES: Temp: 25±1 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 0 ppt Photoperiod: 16 ℓ, 8 d Light Intensity: 50 - 100 fc

Test Conc	Rep	Temperature (°C) 1	2	3	4	5	6	7	pH 1	2	3	4	5	6	7	Dissolved Oxygen (mg/L) 1	2	3	4	5	6	7	Conductivity (µS/cm) / Salinity (ppt) 1	2	3	4	5	6	7
MH Control		24.5	24.6						6.8	8.1						7.7	7.6						359	361					
6.25%		24.6	–						6.9	–						2.7	–						1287	–					
12.5%		24.7	–						7.0	–						0.34	–						2223	–					
25%		24.8	–						6.7	–						0.17	–						4131	–					
50%		24.7	–						6.4	–						5.3	–						7846	–					
100%		24.8	–						6.3	–						6.9	–						14090	–					
Meter Number		678	679						678	679						678	679						678	679					
Time		0910	1010						0910	1010						0910	1010						0910	1016					
Initials		JR	–						JR	–						JR	–						JR	–					

ED_002099_0000533-00043

TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18-423

Date/Time/Initials	Comments/Activity

ED_002099_0000533-00044

BLOCK LOADING CHART
(*C. dubia* Chronic Toxicity Test)

Project Number: 70005.15

Client: TDX

QC Test Number: TN-18-423

Back of Board

CUP 1	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
CUP 2	Load 2	Load 3	Load 4	Load 5	Load 6	Load 1
CUP 3	Load 3	Load 4	Load 5	Load 6	Load 1	Load 2
CUP 4	Load 4	Load 5	Load 6	Load 1	Load 2	Load 3
CUP 5	Load 5	Load 6	Load 1	Load 2	Load 3	Load 4
CUP 6	Load 6	Load 1	Load 2	Load 3	Load 4	Load 5
CUP 7	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
CUP 8	Load 2	Load 3	Load 4	Load 5	Load 6	Load 1
CUP 9	Load 3	Load 4	Load 5	Load 6	Load 1	Load 2
CUP 10	Load 4	Load 5	Load 6	Load 1	Load 2	Load 3

Front of Board

ATS-T79
12/27/17

RANDOMIZATION CHART
(*C. dubia* Chronic Toxicity Test)

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18-423

(White Boards)

1	4	6	3	5	2
4	3	6	1	2	5
6	1	5	2	4	3
6	2	1	4	5	3
3	6	2	4	1	5
3	5	4	6	2	1
5	4	1	3	6	2
1	5	3	2	4	6
6	2	4	1	5	3
4	1	2	6	3	5

ATS-T48a
03/01/00

TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18-423

Correction Explanations

(a) Technician Error-Mathematical

(b) Technician Error-Manual Data Recording

(c) Technician Error-Head Count Observation

(d) Technician Error-Overwrite

(e) Technician Error-Missing Data

(f) Technician Error-Lost Organism

(g) Technician Error-Transcription Error

(h) Technician Error-Other:

(i) Meter Malfunction

TOXICITY TEST SET-UP BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18426

TEST ORGANISM INFORMATION

Common Name: Fathead minnow

Scientific Name: *P. promelas*

Lot Number: FH-361

Source: ~~EA~~ ABS 5/30 MM (B)

Adults Isolated (Time, Date): ~

Neonates Pulled & Fed (Time, Date): ~

Acclimation: <24 hrs Age: <24 hrs

Culture Water (T/S): 24.3 °C 0 ppt

TEST SET-UP

TEST INITIATION

Date	Time	Initials	Activity
5/30/18	1145	JR	Dilutions Made
	1220	NM	Test Vessels Filled
	1312	CWB	Organisms Transferred
			Head Counts

CONCENTRATION SERIES

Test Concentration	Volume Test Material	Final Volume
Mod Hard Control	0ml	1000ml
6.25%	62.5ml	
12.5%	125ml	
25%	250ml	
50%	500ml	
100%	1000ml	

Comments:

INTERMEDIATE DILUTION PREPARATION AND FEEDING

DILUTION PREPARATION

Day	Date	Time	Initials	Sample / Diluent
0	5/30 JR 5/30/18	1145	JR	ATS-335 / LDS-356
1	5/31/18	0835	JR	LDS-347
2				
3				
4				
5				
6				

FEEDING

Food: *Artemia*

Day	Time, Initials, Amount	Time, Initials, Amount	Time, Initials, Amount
0			1614 CWB 3 drops
1	0812 CWB 3 drops	1200 MM 3 drops	1614 CWB 3 drops
2	4 drops	4 drops	4 drops
3	4 drops	4 drops	4 drops
4	5 drops	5 drops	5 drops
5	5 drops	5 drops	5 drops
6	5 drops	5 drops	5 drops

TOXICITY TEST OBSERVATION DATA SHEET

Project Number: 70005.15
Client: TDX
QC Test Number: TN- 18-426
Test Material: Effluent
Accession Number: 18-335
Dilution Water: Mod Hard
Accession Number: LDB-356

TEST ORGANISM
Common Name: Fathead minnow
Scientific Name: *P. promelas*

TEST TYPE: (Static) / Flowthrough
(Renewal) / Non-renewal
Photoperiod: 16 l, 8 d Light Intensity: 50 - 100 fc

Beginning Date: 5/30/18 Time: 1220
Ending Date: 6/1/18 Time: 1129

Test Container: 1-L Beaker
Test Volume: 250 ml
Test Duration: 7 days

Concentration	Rep	Number of Surviving Organisms							
		Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Mod Hard Control	A	10	10	10					
	B	10	10	10					
	C	10	10	10					
	D	10	9	9					
6.25%	A	10	D	—	—	—	—	—	—
	B	10	0	—	—	—	—	—	—
	C	10	0	—	—	—	—	—	—
	D	10	0	—	—	—	—	—	—
12.5 %	A	10	0	—	—	—	—	—	—
	B	10	0	—	—	—	—	—	—
	C	10	0	—	—	—	—	—	—
	D	10	0	—	—	—	—	—	—
Time / Initials		1312 CB	0936 JR 5/31 JR (E)	1129 JR					

EPA TEST METHOD: (FW) EPA 821-R-02-013/(SW) EPA 821-R-02-012(CHECK ONE):

Fathead: (1000.0) X Cyprinodon: (1004.0)____ Menidia: (1006.0)____ Americamysis: (1007.0)____ OTHER:____

ATS-T10
12/02/08

ED_002099_0000533-00049

TOXICITY TEST OBSERVATION DATA SHEET

Project Number: 70005.15
Client: TDX
QC Test Number: TN-18-426
Test Material: Effluent
Accession Number: A18-335
Dilution Water: Mod Hard
Accession Number: LDB-356

TEST ORGANISM
Common Name: Fathead minnow
Scientific Name: *P. promelas*

TEST TYPE: (Static) / Flowthrough
(Renewal) / Non-renewal
Photoperiod: 16 l, 8 d Light Intensity: 50 - 100 fc

Beginning Date: 5/30/18 Time: 1220
Ending Date: 6/1/18 Time: 1129

Test Container: 1-L Beaker
Test Volume: 250 ml
Test Duration: 7 days

Concentration	Rep	Number of Surviving Organisms							
		Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
25%	A	10	0	–	–	–	–	–	–
	B	10	0	–	–	–	–	–	–
	C	10	0	–	–	–	–	–	–
	D	10	0	–	–	–	–	–	–
50%	A	10	0	–	–	–	–	–	–
	B	10	0	–	–	–	–	–	–
	C	10	0	–	–	–	–	–	–
	D	10	0	–	–	–	–	–	–
100%	A	10	0	–	–	–	–	–	–
	B	10	0	–	–	–	–	–	–
	C	10	0	–	–	–	–	–	–
	D	10	0	–	–	–	–	–	–
Time / Initials		1312 CB	0936 JR	1121 MM					

EPA TEST METHOD: (FW) EPA 821-R-02-013/(SW) EPA 821-R-02-012(CHECK ONE):

Fathead: (1000.0) X Cyprinodon: (1004.0)_____ Menidia: (1006.0)_____ Americamysis: (1007.0)_____ OTHER:_____

ATS-T10
12/02/08

ED_002099_0000533-00050

TOXICITY TEST WATER QUALITY DATA SHEET - NEW SOLUTIONS

Project Number: 70005.15
Client: TDX
QC Test Number: TN-18-4260

TEST ORGANISM
Common Name: Fathead minnow
Scientific Name: *P. promelas*

Beginning Date: 5/30/18 Time: 1220
Ending Date: 6/1/18 Time: 1129

TARGET VALUES: Temp: 25±1 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 0 ppt Photoperiod: 16 ℄, 8 ℄ Light Intensity: 50 - 100 fc

Test Conc	Rep	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Conductivity (µS/cm) ~~Salinity (ppt)~~						
		0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6	0	1	2	3	4	5	6
MH Control		24.1	24.0	—	—	—	—	—	7.1	8.0	—	—	—	—	—	8.1	8.3	—	—	—	—	—	3260	3410	—	—	—	—	—
6.25%		24.2	—	—	—	—	—	—	6.8	—	—	—	—	—	—	8.1	—	—	—	—	—	—	13760	—	—	—	—	—	—
12.5%		24.2	—	—	—	—	—	—	6.7	—	—	—	—	—	—	8.1	—	—	—	—	—	—	2318	—	—	—	—	—	—
25%		24.2	—	—	—	—	—	—	6.6	—	—	—	—	—	—	8.1	—	—	—	—	—	—	4183	—	—	—	—	—	—
50%		24.2	—	—	—	—	—	—	8.0 6.3	—	—	—	—	—	—	8.0	—	—	—	—	—	—	7738	—	—	—	—	—	—
100%		24.2	—	—	—	—	—	—	6.4	—	—	—	—	—	—	7.5	—	—	—	—	—	—	14140	—	—	—	—	—	—
Meter Number		679	678						679	678						679	678						679	678					
Time		1150	0840						1150	0840						1150	0840						1153	0840					
Initials		NM	SR						NM	SR						NM	SR						NM	SR					

NM 5/30 1650

ATS-T14
06/21/06

ED_002099_0000533-00051

TOXICITY TEST WATER QUALITY DATA SHEET - OLD SOLUTIONS

Project Number: 70005.15
Client: TDX
QC Test Number: TN-18-4210

TEST ORGANISM
Common Name: Fathead minnow
Scientific Name: *P. promelas*

Beginning Date: 5/30/18 Time: 1220
Ending Date: 6/1/18 Time: 1127

TARGET VALUES: Temp: 25±1 °C pH: 6.0 - 9.0 DO: ≥4.0 mg/L Salinity: 0 ppt Photoperiod: 16 ℓ, 8 ᵈ Light Intensity: 50 - 100 fc

Test Conc	Rep	Temperature (°C)							pH							Dissolved Oxygen (mg/L)							Conductivity (µS/cm) Salinity (ppt)						
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
MH Control		24.3	24.3						7.8	8.1						7.6	8.1						344	358					
6.25%		24.6	—	—	—	—	—	—	7.6	—	—	—	—	—	—	7.2	—	—	—	—	—	—	1378	—	—	—	—	—	—
12.5%		24.8	—	—	—	—	—	—	7.3	—	—	—	—	—	—	3.1	—	—	—	—	—	—	2311	—	—	—	—	—	—
25%		24.8	—	—	—	—	—	—	7.0	—	—	—	—	—	—	1.4	—	—	—	—	—	—	4053	—	—	—	—	—	—
50%		25.1	—	—	—	—	—	—	6.5	—	—	—	—	—	—	6.4	—	—	—	—	—	—	7698	—	—	—	—	—	—
100%		25.1	—	—	—	—	—	—	6.3	—	—	—	—	—	—	5.8	—	—	—	—	—	—	13170	—	—	—	—	—	—
Meter Number		678	671						678	671						678	671						678	671					
Time		0850	1020						0850	1020						0850	1020						0850	1020					
Initials		JR	—						JR	—						JR	—						JR	—					

ATS-T14
06/21/06

ED_002099_0000533-00052

WEIGHT DATA (Test Species: *P. promelas*)

Project Number: 70005.15

Client: TDX

QC Test Number: TN-18-426

Tin Lot: _____

Oven Temp (°C): Start: _____ End: _____

	Date	Time	Initials
Loaded tins placed in oven:			
Loaded tins removed from oven:			
Loaded tins weighed:			

Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(if applicable) Mean Biomass (mg/exposed org.)
MH Control	A							
	B							
	C							
	D							
6.25%	A							
	B							
	C							
	D							
12.5%	A							
	B							
	C							
	D							

Dry wt. calculations checked (date, initials): _____ Biomass calculations checked (date, initials): _____

ED_002099_0000533-00053

WEIGHT DATA (Test Species: *P. promelas*)

Project Number: 70005.15

Client: TDX

QC Test Number: TN-18-426

Tin Lot: _____

Oven Temp (°C): Start: _____ End: _____

	Date	Time	Initials
Loaded tins placed in oven:			
Loaded tins removed from oven:			
Loaded tins weighed:			

Oven Number: BLM-01 Balance Number: P0115825

Test Concentration	Rep	Tin #	A Weight of Tin (mg)	B Weight of Tin and Dried Organisms (mg)	B-A Total Dry Organism Weight (mg)	C Number of Organisms Weighed	(B-A)/C Mean Dry Organism Weight (mg)	(If applicable) Mean Biomass (mg/exposed org.)
25%	A							
	B							
	C							
	D							
50%	A							
	B							
	C							
	D							
100%	A							
	B							
	C							
	D							

Dry wt. calculations checked (date, initials): _____ Biomass calculations checked (date, initials): _____

ED_002099_0000533-00054

RANDOMIZATION CHART

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18-426

5	6	2	3	1	4
4	3	2	1	5	6
2	1	4	3	5	6
1	6	3	2	5	4

ATS-T48d
03/01/00

TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18-426

Date/Time/Initials	Comments/Activity

ED_002099_0000533-00056

TOXICOLOGY LABORATORY CORRECTION BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18-426

Correction Explanations

(a) Technician Error-Mathematical

(b) Technician Error-Manual Data Recording

(c) Technician Error-Head Count Observation

(d) Technician Error-Overwrite

(e) Technician Error-Missing Data

(f) Technician Error-Lost Organism

(g) Technician Error-Transcription Error

(h) Technician Error-Other:

(i) Meter Malfunction

TOXICOLOGY LABORATORY BENCH SHEET

Project Number: 70005.15

Client: TDX

QC Test Number: TN- 18-423/424/425/426

Aliquot of sample warmed to test temperature, then aerated if supersaturated:

		ON AIR			OFF AIR		
Date	Sample #	Initial DO (mg/L)	Time	Initials	Final DO (mg/L)	Time	Initials
5/30/18	AT8-335	7.3	—	MJ	—	—	—

ATS-T49
03/01/00

ATTACHMENT II

Report Quality Assurance Record
(2 pages)

REPORT QUALITY ASSURANCE RECORD

Client: TDX Associates

Project Number: 70005.15

Author: Michal Chenov

EA Report Number: 7762

REPORT CHECKLIST

QA/QC ITEM	REVIEWER	DATE
1. Samples collected, transported, and received according to study plan requirements.		6/5/18
2. Samples prepared and processed according to study plan requirements.		6/5/18
3. Data collected using calibrated instruments and equipment.		6/5/18
4. Calculations checked:		
- Hand calculations checked		6/5/18
- Documented and verified statistical procedure used.		6/5/18
5. Data input/statistical analyses complete and correct.		6/6/18
6. Reported results and facts checked against original sources.		6/6/18
7. Data presented in figures and tables correct and in agreement with text.		6/6/18
8. Results reviewed for compliance with study plan requirements.		6/5/18

	AUTHOR	DATE
9. Commentary reviewed and resolved.		6/6/18

10. All study plan and quality assurance/control requirements have been met and the report is approved:

PROJECT MANAGER	6/6/18 DATE
QUALITY CONTROL OFFICER	6/6/18 DATE
SENIOR TECHNICAL REVIEWER	6/6/18 DATE

ATS-Q8
01/25/02

Message

From: Robert Phelan [phelan.eim@earthlink.net]
Sent: 12/15/2017 9:38:56 PM
To: Elliott, Ross [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=33cb08013cc94c21a3e3236dbad4c4a4-REELLIOT]
CC: Atagi, Tracy [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=ebcfd670077440dfb63a691749f20af2-TATAGI]
Subject: Question?

Ross:

It has been awhile since I spoke with you. Have an issue, and I wanted to test your memory. It is an issue concerning the OBSM exclusion as it relates to secondary materials and media impacted by hydrocarbon contamination. I have petroleum refining clients with significant volumes of soil that will be excavated during construction and maintenance activities in the gulf south. There is interest in utilizing existing or pending indirectly-heated thermal desorption units ("ITDU") to process excavated soils that have elevated concentrations of hydrocarbons or exhibit an organic hazardous characteristic.

Obviously, the primary use of the ITDU's is to process oil-bearing secondary materials ("OBSMs") resulting from petroleum refining operations, to recover hydrocarbons for reinsertion within the petroleum refining process. In some cases, refiners have secured conditional exclusions ("delistings") to manage resulting residual solids as solid waste, or are exploring the use of the generator-controlled exclusion (40 CFR 261.4(a)(23).

The intent is to "classify" excavated soils that contain elevated concentrations of hydrocarbons or exhibit an organic hazardous characteristic as "other contaminated materials / media," capable of being processed on-site within ITDU's. It is their position that, once its contaminated soils are excavated and contained, the hydrocarbon contaminated material can be effectively processed by ITDU's to reclaim and recover hydrocarbons for reuse within the petroleum refining process. In addition, the resulting "clean" material can be effectively characterized for multiple reuse options under appropriate "risk-based' standards.

The following issues require concurrence and / or clarification.

- Indirect-heated thermal desorption is a common technology for the reclamation and recovery of hydrocarbons and organic constituents from secondary materials and contaminated media resulting from petroleum refining operations. Indirect-fired thermal desorption units represent a technology that is commonly applied on-site by the petroleum refining sector as an integral component of petroleum refining operations or exempt reclamation process, under multiple state-led exclusions and variances.

- Hydrocarbon contaminated soils resulting from petroleum refining operations, once excavated and properly contained, represent an oil-bearing material with recoverable hydrocarbon value. The source of contamination for on-site soils clearly results from petroleum refining operations, identical to any OBSMs – only the media appears to differ. However, the goal is to properly manage solid wastes, and to manage them at the source of their generation, whenever prudent.

- Off-site treatment / management of excavated soils creates significant liabilities and costs, and additionally requires the facility to purchase clean soils which immediately become contaminated and part of the facility's corrective action liabilities upon placement on the facility's property. Logic supports the activity, and the benefits are obvious and compelling. The ability to conduct this activity would go a long way to the development of comprehensive reclamation programs with potential to eliminate nearly all off-site transport and management of recyclable hazardous wastes.

Are there any precedent programs or options, that can support this activity? Any guidance addressing the issue? Is there anyone you can recommend to further discuss this issue?

Thanks

Robert A. Phelan, Manager
Environmental Issues Management, LLC
75438 River Road
Covington, LA 70435
(985) 966-1000 Direct
phelan.eim@earthlink.net

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To: Luschek, Robert[Luschek.Robert@epa.gov]; Potts, Mark[Potts.Mark@epa.gov]; Tidmore, Guy[tidmore.guy@epa.gov]; Jones, Bruced[Jones.Bruced@epa.gov]; Atagi, Tracy[Atagi.Tracy@epa.gov]; Przyborski, Jay[Przyborski.Jay@epa.gov]
From: Fruitwala, Kishor
Sent: Thur 6/7/2018 8:29:11 PM
Subject: FW: Comments on Thermaldyne Draft Water Discharge Permit AI Number 198467, Permit Number LA0127307, Activity Number PER20180001
TDX_Comments_Thermaldyne_Draft_LPDES_Permit.pdf

FYI.

Kishor

-----Original Message-----
From: Carl Palmer [mailto:cpalmer@tdxassociates.com]
Sent: Thursday, June 07, 2018 3:20 PM
To: deq.publicnotices@la.gov
Cc: Luschek, Robert <Luschek.Robert@epa.gov>; Fruitwala, Kishor <Fruitwala.Kishor@epa.gov>
Subject: Comments on Thermaldyne Draft Water Discharge Permit AI Number 198467, Permit Number LA0127307, Activity Number PER20180001

LDEQ Public Participation,

Please accept my comments on the subject draft variance. I have copied USEPA on my comments via this email.

Sincerely,
Carl Palmer

--

Carl R. Palmer, P.E.
TD*X Associates LP
(919) 349-1583 mobile

TD*X Associates LP
148 South Dowlen Road, PMB 700
Beaumont, TX 77707

From the Desk of
Carl R. Palmer
TD*X Associates, LLC
PO Box 13216
Research Triangle Park, NC 27709
ph (919) 349-1583
FAX (509) 692-8791
E-mail: cpalmer@tdxassociates.com

June 7, 2018

Louisiana Department of Environmental Quality
Public Participation Group
PO Box 4313
Baton Rouge, LA 70821

VIA Email. Deq.publicnotices@la.gov

SUBJECT: AI Number 198467,
Permit Number LA0127307,
Activity Number PER20180001

Dear Sir or Madame;

I have reviewed the May 3, 2018 Draft Water Discharge Permit that proposes to approve the Thermaldyne LLC request to discharge treated wastewater from the processing of RCRA regulated oil bearing hazardous waste materials for their treatment storage and disposal facility in Port Allen, LA. This letter presents my comments on the Draft Permit. I am also providing comments on Thermaldyne's permit application and additional information documents as it relates to this matter.

These comments are based upon a depth of operating experience and specific performance monitoring of essentially the same technologies as being proposed by Thermaldyne. My associates and I have been exclusively engaged in this technology since its earliest use in 1987, we directed and implemented one of the first large scale commercial applications in 1992, and we own and operate an essentially identical facility in Robstown, TX, having operated continuously since 2008 on the same feed materials as proposed by Thermaldyne.

The proposed permit is for Thermaldyne to discharge treated process wastewater from the operation of three centrifuges and a thermal desorption unit (TDU) that are engaged in the reclamation of RCRA regulated oil bearing hazardous waste materials at their treatment storage and disposal facility in Port Allen, LA. The feed material for the facility is a complex mixture of oily materials, containing:

- organic chemicals with toxic and flammable volatile organic compounds (VOCs) including benzene, toluene, xylene, ethylebenzene and trimethylbenzene,
- organic chemicals with toxic semi-volatile organic compounds (SVOCs) including numerous carcinogenic polynuclear aromatic hydrocarbon (PAH) compounds such as benzo-a-pyrene, as well as petroleum oils,
- toxic metals including arsenic, cadmium, chromium, lead, and mercury, as well as significant concentrations of molybdenum, vanadium and nickel, and
- numerous other organic and inorganic chemical compounds that are part of the operation of a petroleum refinery and therefore become constituents of the waste materials that are proposed to be received by Thermaldyne.

The TDU employs process conditions to evaporate and condense the feed material's organic and water constituents into a mixture of oil and water that are separated. The TDU operates at relatively high temperature, above 900°F, generating water soluble organic compounds from feed materials. The wastewater from the TDU contains these water soluble organics, as well as emulsified oil (and the VOC and SVOC compounds present in the oil). The waste water also contains dissolved and filterable solids with the toxic metals from the feed material being present. Additional oily wastewater with soluble organics, emulsified oil and toxic metals is derived from the operation of the three centrifuges that process oily slurries of the same feed materials.

Thermaldyne proposes to use a wastewater treatment system consisting of oil/water separation, dissolved air flotation, polymer addition, sand filter, bag filter, and granular activated carbon. Thermaldyne estimates the TDU and centrifuge wastewater flow to be 10,000 gal/day, plus additional contact wastewater from stormwater run-on at the facility. No chemical data are presented for treated wastewater samples from the facility, because this is a new facility, and Thermaldyne has not previously operated a similar facility.

A review of the draft permit resulted in the following key issues:

- The wastewater from processing petroleum refinery hazardous secondary material (HSM) in a TDU is acutely and chronically toxic when treated with the process that Thermaldyne proposes. Toxicity testing needs to be incorporated into the permit monitoring plan to confirm compliance with permit condition N-3 for Outfall 001 that prohibits the discharge of *toxic materials in quantities such as to cause toxicity to aquatic organisms*.
- Wastewater from TDU processing of petroleum refinery HSM contains significant concentrations of both ammonia, and dissolved solids (TDS) in the form of chlorides and sulfates. A discharge limit for ammonia and possibly TDS should be added to the effluent criteria for Outfall 001, and appropriate monitoring added to confirm compliance.
- Treated wastewater samples from processing petroleum refinery HSM in a comparable TDU exhibit very high levels of BOD, COD, oil & grease (and TPH), TOC, phenol compounds, and hexavalent chromium. Quarterly monitoring is not sufficient to

demonstrate initial compliance with the effluent criteria, and more frequent testing is needed to establish that the water treatment proposed by Thermaldyne can meet the criteria.

- Additional pollutants are likely to be present in the treated wastewater. Thermaldyne has not represented the presence of VOC compounds including benzene and acetone that are known to be present.
- Effluent criteria for Outfall 001 should be derived from the process wastewater criteria, rather than stormwater runoff, according to the methodology of 40 CFR 419.52(a) and (b). Adjustments should be made to the effluent criteria, and the additional pollutants ammonia and sulfide should be added.

TDU facility wastewater samples were analyzed in support of these comments. Two samples were collected in May 2018 from the TD*X TDU operating at the US Ecology Texas facility in Robstown, TX. During the sampling the TD*X facility was processing waste feeds in both the TDU and the centrifuge system that are identical to those proposed for the Thermaldyne facility. The test report is attached to this comment letter.

Aquatic Toxicity Testing of TDU Wastewater from Petroleum Refinery HSM Processing.
The potential for aquatic toxicity was determined using a treated wastewater sample from the TD*X TDU facility in Robstown, TX. The treatment system utilized at the TD*X facility consists of chemical treatment to remove emulsions, clarification, dissolved air flotation, additional clarification and particle filtration. A comparable process as proposed by Thermaldyne. Both acute and chronic toxicity tests were conducted using *C. dubia* (water flea) and *P. promelas* (fathead minnow) and followed US EPA methods. All tests were terminated after 48 hours due to mortality and the results of these tests were as follows:

C. dubia 48 hour LC50<6.25% effluent
C. dubia NOEC<6.25% effluent
P. promelas 48 hour LC50<6.25% effluent
P. promelas NOEC<6.25% effluent

The implications of this data are that at only 6.25% effluent concentrations both acute (lethal) and chronic (long term) toxic conditions would be expected to occur in the receiving water. These data clearly indicate that this wastewater has a potential for exhibiting a high degree of toxicity. Thus, even with receiving stream dilutions in excess of a factor of 10, there is a reasonable potential that the discharge will result in both acute and chronically toxic conditions within the receiving water. The potential for these conditions must be monitored and controlled through the application of appropriate limitations based on whole effluent toxicity.

Data on conductivity and ammonia were collected during the test. The ammonia concentrations were measured at 594 mg/L (as NH_3). At a flow rate of 10,000 gpd, an ammonia concentration of 594 mg/L is equivalent to a daily loading of 40 lbs of nitrogen to the receiving stream per day. In comparison, assuming a typical ammonia discharge limitation of 2 mg/L (as nitrogen),

this loading is equivalent to a municipal discharge flow of 2.4 MGD (comparable to a city of 10,000 inhabitants).

With respect to conductivity, a conductivity value of 14,140 µS is roughly equivalent to a TDS of 936 mg/L. The standard for the receiving water is 300 mg/L TDS; thus the discharge will exceed this standard by a factor of 3. This further emphasizes the importance of gathering more data and setting limits.

1.0 General Comments on Thermaldyne LPDES Permit

The permit fails to include monitoring requirements for aquatic toxicity testing, fails to conduct an antidegradation analysis, does not to incorporate limits for constituents that are likely to be in the wastewater and are water quality limiting or are likely to be present in toxic concentrations, and incorrectly applies categorical effluent limitations. As a result of these deficiencies, the permit does not comply with the requirements of LAC 33:IX.

Aquatic Toxicity Testing Must Be Required for Outfall 101. LAC 33:IX.1121.B requires the implementation of aquatic toxicity testing requirements for discharges for which no water-quality related data are available. Specifically, Section B.3 states that 'whole effluent toxicity testing will be required in the permit for discharges where data are insufficient to demonstrate that any discharge does not or will not contribute to ambient toxicity' (emphasis added). The importance of incorporating aquatic toxicity testing requirements cannot be understated when the following is considered:

- This is a new facility and the wastestreams originating from this facility have not been chemically or toxicologically characterized.
- The variability of the feedstock is unknown and must be characterized with respect to both individual chemical constituents as well as aquatic toxicity. Even if data for 'similar' wastestreams has been submitted, the aggregate toxicity and variability of the waste from the proposed Thermaldyne facility is unknown and should be documented through testing of actual discharges.
- Test data from comparable treated wastewater from the TD*X Robstown, TX facility clearly indicate that this wastewater has a potential for exhibiting a high degree of toxicity.
- Data in terms of flow frequency, duration and magnitude do not exist for this discharge and we believe that the estimated flows and chemical characteristics are optimistic, at best. Thus, at a minimum, the discharge must be fully characterized through frequent sampling and analysis throughout the first year of operation to determine if the proposed permit limits are appropriate, if they should be reduced or if additional parameters should also be included in the permit.

Further, we note that the discharge is to a drainage ditch which ultimately flows to the Intracoastal Waterway. The Fact Sheet does not provide flow records for the drainage ditch;

thus, it is assumed that flow is either very low or intermittent. In either case, the drainage ditch is a 'water of the state' and must be protected. Given the results obtained with a similar wastewater, limits of no acute (LC50>100% effluent) and no chronic (NOEC=100% effluent) toxicity should be required.

An Antidegradation Analysis Must Be Conducted. LAC33:IX.1119.C requires an antidegradation analysis be conducted for new or increased discharges to ensure that water quality standards are not exceeded and the designated uses of the receiving water are not adversely impacted. As noted in the Fact Sheet, the receiving stream is not supporting one or more of its designated uses. The receiving stream is listed as impaired due to sulfates, dissolved oxygen, nutrients and fecal coliform. Further, a TMDL has been established within selected subsegments of the Terrebonne Basin for fecal coliform, chlorides, sulfates, total dissolved solids, sediment, total suspended solids, dissolved oxygen, nutrients and turbidity. However, with the exception of TOC and BOD (which exert an oxygen demand on the receiving water), none of these constituents which have been identified to be impacting the designated uses are required to be monitored. Since these compounds have been identified as causing impairment within the Terrebonne Basin, the permit should require monitoring for chloride, sulfate, TDS, TSS, DO, nitrogen, phosphorus and turbidity.

A wastewater sample collected from a comparable facility was analyzed for aquatic toxicity and limited general water quality characteristics (pH, ammonia and conductivity). The results of the chemical analyses were as follows:

- pH = 6.3-6.4
- Ammonia (NH3) = 594 mg/L (estimated value, concentration exceeded capability of instrumentation)
- Conductivity = 14,140 uS (conversion of conductivity to TDS (i.e. conductivity * 0.65 = TDS) gives an estimated TDS concentration of 936 mg/L)

These values emphasize the importance of a more detailed antidegradation analysis and the need for the imposition of permit limitations. At a flow rate of 10,000 gpd, an ammonia concentration of 594 mg/L is equivalent to a daily loading of 40 lbs of nitrogen to the receiving stream per day. In comparison, assuming a typical ammonia discharge limitation of 2 mg/L (as nitrogen), this loading is equivalent to a municipal discharge flow of 2.4 MGD.

Table 3 of LAC33:IX.1123 establishes numerical criteria and designated uses for the Terrebonne Basin (Code 120109). Numeric standards for chloride, sulfate, dissolved oxygen, pH, bacteria, temperature and total dissolved solids have been established. However, data for these constituents in the proposed discharge is not available and the permit does not require monitoring for these constituents. Thus, it is unknown if this new discharge is likely to impact the receiving stream or contribute to further degradation of the receiving stream. Data derived for a similar wastestream indicate a TDS concentration of approximately 936 mg/L which far exceeds the water quality standard of 300 mg/L established for the Terrebonne Basin. Thus, monitoring

requirements and limitations should be established at the water quality standards developed for the Terrebonne Basin for chloride (60 mg/L), sulfate (40 mg/L) and TDS (300 mg/L).

As noted above, the permit does contain limitations for TOC and BOD. Limits of 50 mg/L TOC are applied to outfalls 001, 002 and 003 and limits of between 25 and 48 mg/L BOD are applied to the internal process monitoring points (outfalls 101 and 102). Due to the nature of the process and sanitary waste streams, discharges from the internal outfalls (101 and 102) are likely to be continuous. However, contributions of stormwater at outfalls 001 and 002 will be intermittent. Thus, for a majority of the time, the discharge at outfalls 001 and 002 will consist solely of process or sanitary wastewater. Given the maximum limits of 45 – 48 mg/L BOD applied to outfalls 101 and 102, the discharges at 001 and 002 are likely to exceed the TOC limit of 50 mg/L. Specifically, 40 CFR 419.52(e) indicates that, for this industry, the relationship between TOC and BOD is: TOC = 2.2 * BOD. Thus, a discharge of 40 mg/L as BOD is roughly equivalent to a TOC of 88 mg/L. Without any dilution, the discharge of BOD from outfall 101 (for example) which is shown to be in compliance at outfall 101 is likely to be out of compliance at outfall 001. Thus, more restrictive limits should be applied at outfalls 101 and 102.

Further, LDEQ has not completed the necessary analyses to demonstrate that a discharge of 50 mg/L TOC from outfalls 001, 002 or 003 or a discharge of 25-48 mg/L BOD from 101 or 102 during non-storm event days, is not likely to contribute to low DO conditions within the receiving ditch. No receiving water flow information is provided in the Fact Sheet. If the flow of the receiving water is low, travel time is slow and temperatures are elevated, the continuous discharge of BOD could create low DO conditions. No information has been provided to demonstrate that this is not likely to be the case.

The Permit Does Not Establish Discharge Limitations for the Sanitary Treatment Facility Consistent with LAC33:IX.709. This section is specific to sanitary and domestic waste discharges with an average flow of less than 2,500 gallons per day. Under this regulation, limits for oil and grease of 20 mg/L have been established. This limitation should be applied to internal outfall 102.

The Categorical Standards were Inappropriately Applied. Categorical standards for the Petroleum Refining Integrated Subcategory (40 CFT 419.50 and following) were applied to the facility. Specifically, categorical standards for contaminated runoff (419.52(e)) were applied to the internal outfall 101. This outfall is described as consisting of process wastewater plus miscellaneous utility water including stormwater. From the description it is unclear if the stormwater is treated as part of the process wastewater or is added to the process wastewater after treatment. Since a process flow diagram was not provided, it is unknown how the process wastewater is managed. Is the process wastewater treated and then combined with miscellaneous and stormwater, or is all of the process/miscellaneous/storm water combined and then treated? If the case is the former, then the limitations developed in 40 CFR 419.52(a) apply to the treated process water and are based on the feedstock production rate. If the latter, then the limitations of 40 CFR 419.52(e) apply and the applicant should demonstrate adequate storage or treatment

capacity to treat a significant storm event without bypass or upset (i.e., a 24-hour, 10-year storm event)[a].

Further, outfalls 001, 002 and 003 all have the potential to contain contaminated stormwater. Thus, the categorical limitations established in 419.52(e) should be applied to these outfalls. In addition, the permit writer should, as noted above, also conduct a water quality analysis to determine if more restrictive water quality based limitations are required. If limitations more restrictive than the categorical standards are identified, they should be applied in lieu of the categorical limits.

Monitoring Requirements are Too Infrequent to Assess Compliance. LDEQ has established quarterly monitoring requirements. Because this is a new discharge and no information is available on the chemical makeup or variability of the wastewater, more frequent sampling should be required.

As noted above, the wastewater sample collected from the comparable facility does not utilize GAC absorption because 1) the COD of the discharge quickly exceeds the capacity of the GAC system and 2) excessively frequent GAC media replacement is required making the process impractical. The implications of this are that monitoring of the process outfall 101 should be conducted at a minimum of weekly because, based on our findings above, the efficiency of the treatment process to reduce aquatic toxicity is likely dependent upon the capacity of the granular activated carbon column. By sampling on a weekly or more frequent basis, LDEQ can be assured that the carbon system is maintained and any breakthrough will be detected before substantial discharge occurs. Quarterly monitoring is insufficient to ensure that the carbon is being properly monitored and replaced when capacity is reached. Note that the GAC system is likely to have minimal impact on TDS or ammonia; thus, there is still a large likelihood that the wastewater will still be toxic even after treatment with GAC.

In addition, sampling of outfalls 001/101 and 002/102 should be coordinated to document 1) events when both stormwater and process or sanitary discharges are occurring and 2) events when only process (from Outfall 101) or sanitary (from outfall 102) are occurring. This will allow the impact of stormwater to each discharge from both a dilution and contaminant perspective.

2.0 Results of Chemical Analysis of Comparable TDU Wastewater

TDU facility wastewater samples were analyzed in support of these comments. Two samples were collected in May 2018 from the TD*X TDU operating at the US Ecology Texas facility in Robstown, TX. During the sampling the TD*X facility was processing waste feeds in both the

[a] The 24-hr, 10-year storm event has a precipitation volume of 8 – 8.5 inches (G.E. Fraiers, 1997, Rainfall frequency/magnitude atlas for the south-central United States. SRCC technical report 97-1). If the facility is intended to treat contaminated stormwater, the permittee should demonstrate that the capacity of the facility is sufficient to treat this volume of water without upset or bypass.

TDU and the centrifuge system that are identical to those proposed for the Thermaldyne facility.

It is important to note that TD*X is required by both EPA Region 6 and TCEQ to dispose of the TDU and centrifuge wastewater as being derived from the treatment of hazardous waste, and carrying all of the listed waste codes of the TDU feed material. Consequently, the treated wastewater is disposed in a RCRA permitted deepwell facility, and is not allowed to be discharged to a surface water in Texas. TD*X uses essentially the same water treatment technologies as are proposed by Thermaldyne.

The table below presents results of lab analysis of the TD*X TDU treated wastewater. Data are presented from samples collected in May 2018 while reclaiming identical petroleum refinery HSM as are proposed for the Thermaldyne facility. Data are also provided from historical sampling over the prior five years.

Treated Wastewater Sample Results – TDU Processing Petroleum Refinery HSM

Parameter	Units	K171-172 Catalyst WW 563-205-11	K048-52, F037 Tank Bottoms WW 563-207-28 564-5-22	Historic TDU Wastewater			
				Min	Max	90% UCI	Samples Analyzed
BOD, 5 day	mg/l	392	391	391	5,200	2,422	20
TSS	mg/l	690	540	2	1,100	289	59
COD	mg/l	>22,000	8,300	913	9,240	6,392	9
Oil and Grease	mg/l	77	442	-	-	-	-
TPH	mg/l	-	-	10	2,600	361	61
2,4 Dimethylphenol	ppm	8.9	9.1	<0.2	13.4	4.8	31
2- Methylphenol	ppm	17	75	0.5	75	20.7	38
3&4 Methylphenol	ppm	17	92	0.8	92	20.7	38
Phenol	ppm	49	350	1.5	350	71	38
Ammonia as N	mg/l	<0.80	<0.5	0.5	1,412	1,013	8
Sulfide	mg/l	<0.05	<0.005	-	-	-	-
Total Chromium	mg/l	0.037	0.033	-	-	-	-
Hexavalent Chromium	mg/l	0.34	<0.0050	-	-	-	-
pH	-	5.9	7.4	4.8	9.5	7.0	50
Arsenic	mg/l		0.44	0.14	0.44	0.34	7
Acetophenone	mg/l		9.6				
Pyridine	mg/l		21				
TOC	mg/l			917	3,540	2,353	6
acetone	mg/l		37.0				
2-butanone (MEK)	mg/l		7.9				
benzene	mg/l		1.2	1.2	16.7	10.0	7
BTEX	mg/			4.2	30.5	23.6	6

3.0 Effluent Limitations

In the draft permit LDEQ established wastewater effluent limitations by applying categorical standards for the Petroleum Refining Integrated Subcategory (40 CFR 419.50 and following) to the facility. Specifically, categorical standards for contaminated runoff (40 CFR 419.52(e)) were applied to the internal outfall 101 as follows:

40 CFR 419.52(e)	Outfall 101 Effluent Limitation	
Pollutant	Monthly Average (mg/l)	Daily Maximum (mg/l)
BOD, 5-day	26	48
Chromium hexavalent ion	0.028	0.062
Chromium, Total (as Cr)	0.43	0.73
COD (low level)	180	360
Oil and grease	8	15
Phenolics, Total Recoverable	0.17	0.35
TSS (Total Suspended Solids)	21	33

This outfall is described as consisting of the intermittent discharge of process wastewater; miscellaneous utility wastewater including, but not limited to, fire system water, eyewash station and safety shower water, boiler blowdown, condensate, general facility washwater, and filter backwash; and stormwater runoff. Due to the highly toxic nature of the process wastewater and because stormwater runoff is merely incidental to the facility's principal wastewater discharge, the effluent standards of 40 CFR 419.52(a), corrected using the size factors and process factors given by 40 CFR 419.52(b), should be used to establish effluent limitations:

Size Factor = 0.73 Process Factor = 0.75	Effluent Limitation 419.52(a)		**Effluent Limitation Corrected 419.52(b)**	
Pollutant	Monthly Average (mg/l)	Daily Maximum (mg/l)	**Monthly Average (mg/l)**	**Daily Maximum (mg/l)**
BOD, 5-day	28.9	54.4	**15.8**	**29.8**
Chromium hexavalent ion	0.032	0.068	**0.018**	**0.037**
Chromium, Total (as Cr)	0.48	0.82	**0.26**	**0.45**
COD (low level)	198	388	**108**	**212**
Oil and grease	9.1	17.1	**5.0**	**9.4**
Phenolics, Total Recoverable	0.192	0.40	**0.105**	**0.2**
TSS (Total Suspended Solids)	23.7	37.3	**13.0**	**20.4**
Ammonia as N	10.6	23.4	**5.8**	**12.8**
Sulfide	0.158	0.35	**0.087**	**0.19**